



06/18/13

Technical Report for

Aquaterra Technologies, Inc.

Sun-Marcus Hook Refinery, Philadelphia, PA

AOI-5

Accutest Job Number: JB37699

Sampling Date: 05/22/13



Report to:

**AquaTerra Technologies
122 South Church Street P.O. Box 744
West Chester, PA 19382
jennifer.menges@stantec.com; kward@langan.com;
ptroy@langan.com; estrake@langan.com;
ATTN: Tiffani Doerr**

Total number of pages in report: 196



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

**Nancy Cole
Laboratory Director**

Client Service contact: Kristin Beebe 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

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Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary	4	
Section 2: Case Narrative/Conformance Summary	5	
Section 3: Summary of Hits	8	
Section 4: Sample Results	9	
4.1: JB37699-1: AOI-5_MW-458_0-2'_52213	10	
4.2: JB37699-2: AOI-5_MW-456_5-6'_52213	14	
Section 5: Misc. Forms	18	
5.1: Chain of Custody	19	
5.2: Sample Tracking Chronicle	22	
5.3: Internal Chain of Custody	23	
Section 6: GC/MS Volatiles - QC Data Summaries	24	
6.1: Method Blank Summary	25	
6.2: Blank Spike Summary	27	
6.3: Matrix Spike Summary	29	
6.4: Matrix Spike/Matrix Spike Duplicate Summary	30	
6.5: Duplicate Summary	31	
6.6: Instrument Performance Checks (BFB)	32	
6.7: Internal Standard Area Summaries	35	
6.8: Surrogate Recovery Summaries	37	
6.9: Initial and Continuing Calibration Summaries	38	
Section 7: GC/MS Volatiles - Raw Data	52	
7.1: Samples	53	
7.2: Method Blanks	62	
Section 8: Misc. Forms (Accutest Labs of New England, Inc.)	66	
8.1: Chain of Custody	67	
8.2: Sample Tracking Chronicle	69	
8.3: Internal Chain of Custody	70	
Section 9: GC/MS Semi-volatiles - QC Data (Accutest Labs of New England, Inc.)	71	
9.1: Method Blank Summary	72	
9.2: Blank Spike Summary	73	
9.3: Matrix Spike/Matrix Spike Duplicate Summary	74	
9.4: Instrument Performance Checks (DFTPP)	75	
9.5: Internal Standard Area Summaries	78	
9.6: Surrogate Recovery Summaries	79	
9.7: Initial and Continuing Calibration Summaries	80	
Section 10: GC/MS Semi-volatiles - Raw Data (Accutest Labs of New England, Inc.)	125	
10.1: Samples	126	
10.2: Method Blanks	132	
Section 11: GC Volatiles - QC Data (Accutest Labs of New England, Inc.)	134	
11.1: Method Blank Summary	135	
11.2: Blank Spike Summary	136	
11.3: Matrix Spike/Matrix Spike Duplicate Summary	137	

Table of Contents

-2-

11.4: Surrogate Recovery Summaries	138
11.5: GC Surrogate Retention Time Summaries	139
11.6: Initial and Continuing Calibration Summaries	141
Section 12: GC Volatiles - Raw Data (Accutest Labs of New England, Inc.)	145
12.1: Samples	146
12.2: Method Blanks	154
Section 13: Metals Analysis - QC Data (Accutest Labs of New England, Inc.)	158
13.1: Inst QC MA15689: Pb	159
13.2: Prep QC MP21094: Pb	179
Section 14: General Chemistry - QC Data (Accutest Labs of New England, Inc.)	193
14.1: Percent Solids Raw Data Summary	194
Section 15: General Chemistry - QC Data Summaries	195
15.1: Percent Solids Raw Data Summary	196

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15



Sample Summary

Aquaterra Technologies, Inc.

Job No: JB37699

Sun-Marcus Hook Refinery, Philadelphia, PA
Project No: AOI-5

Sample Number	Collected Date	Time By	Matrix Received	Code Type	Client Sample ID
JB37699-1	05/22/13	10:30 LM	05/22/13	SO	Soil
JB37699-2	05/22/13	09:15 LM	05/22/13	SO	Soil

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Aquaterra Technologies, Inc.

Job No JB37699

Site: Sun-Marcus Hook Refinery, Philadelphia, PA

Report Date 6/18/2013 11:07:28 A

On 05/22/2013, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 2.8 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB37699 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: SO

Batch ID: V3C4403

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB38033-1MS, JB38033-1MSD were used as the QC samples indicated.

Matrix: SO

Batch ID: V3C4404

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB38345-8MS, JB38345-9DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C

Matrix: SO

Batch ID: M:OP33459

- The data for SW846 8270C meets quality control requirements.
- JB37699-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37699-1: Analysis performed at Accutest Laboratories, Marlborough, MA.

Volatiles by GC By Method SW846 8011

Matrix: SO

Batch ID: M:OP33357

- The data for SW846 8011 meets quality control requirements.
- JB37699-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37699-1: Analysis performed at Accutest Laboratories, Marlborough, MA.

Metals By Method SW846 6010C

Matrix: SO

Batch ID: M:MP21094

- The data for SW846 6010C meets quality control requirements.
- JB37699-2 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37699-1 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO

Batch ID: M:GN43069

- The data for SM21 2540 B MOD. meets quality control requirements.
- JB37699-1 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37699-2 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover



SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Accutest New Jersey

Job No JB37699

Site: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Report Date 6/17/2013 5:29:04 PM

2 Sample(s) were collected on 05/22/2013 and were received at Accutest of NJ on 05/22/2013, at Accutest of NE on 05/24/2013 properly preserved, at 3.3 Deg. C and intact. These Samples received an Accutest job number of JB37699. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Extractables by GCMS By Method SW846 8270C

Matrix SO	Batch ID: OP33459
------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC21154-8MS, MC21154-8MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8011

Matrix SO	Batch ID: OP33357
------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB37622-1MS, JB37622-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix SO	Batch ID: MP21094
------------------	--------------------------

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC21154-8MS, MC21154-8MSD, MC21154-8SDL were used as the QC samples for metals.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix SO	Batch ID: GN43069
------------------	--------------------------

- Sample(s) JB37699-1DUP were used as the QC samples for Solids, Percent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(JB37699).

Summary of Hits

Job Number: JB37699
 Account: Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA
 Collected: 05/22/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB37699-1	AOI-5_MW-458_0-2'_52213					
Lead ^a	32.7	0.83	0.14	mg/kg	SW846 6010C	
JB37699-2	AOI-5_MW-456_5-6'_52213					
Benzene	0.0398	0.0011	0.00013	mg/kg	SW846 8260B	
Toluene	0.0243	0.0011	0.00011	mg/kg	SW846 8260B	
Ethylbenzene	0.0054	0.0011	0.00028	mg/kg	SW846 8260B	
Xylene (total)	0.0150	0.0011	0.00015	mg/kg	SW846 8260B	
Isopropylbenzene	0.0014 J	0.0054	0.000080	mg/kg	SW846 8260B	
1,2,4-Trimethylbenzene	0.0085	0.0054	0.00023	mg/kg	SW846 8260B	
1,3,5-Trimethylbenzene	0.0070	0.0054	0.00017	mg/kg	SW846 8260B	
Lead ^a	7.8	0.91	0.15	mg/kg	SW846 6010C	

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.



4

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: AOI-5_MW-458_0-2' 52213

Lab Sample ID: JB37699-1

Date Sampled: 05/22/13

Matrix: SO - Soil

Date Received: 05/22/13

Method: SW846 8260B

Percent Solids: 89.2

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C99129.D	1	05/31/13	JTP	n/a	n/a	V3C4403
Run #2							

	Initial Weight
Run #1	6.0 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00093	0.00011	mg/kg	
108-88-3	Toluene	ND	0.00093	0.000098	mg/kg	
100-41-4	Ethylbenzene	ND	0.00093	0.00025	mg/kg	
1330-20-7	Xylene (total)	ND	0.00093	0.00013	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00093	0.00022	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00093	0.00013	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0047	0.000069	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0047	0.00020	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0047	0.00015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		65-131%
17060-07-0	1,2-Dichloroethane-D4	93%		70-121%
2037-26-5	Toluene-D8	102%		80-128%
460-00-4	4-Bromofluorobenzene	107%		67-131%

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	AOI-5_MW-458_0-2' 52213	Date Sampled:	05/22/13
Lab Sample ID:	JB37699-1	Date Received:	05/22/13
Matrix:	SO - Soil	Percent Solids:	89.2
Method:	SW846 8270C SW846 3546		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #1 ^a	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	W12845.D	5	06/05/13	AMA	06/03/13	M:OP33459	M:MSW591

Run #1	Initial Weight	Final Volume
Run #1	20.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.55	0.19	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.55	0.21	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.55	0.13	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.55	0.13	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.55	0.25	mg/kg	
218-01-9	Chrysene	ND	0.55	0.22	mg/kg	
86-73-7	Fluorene	ND	0.55	0.19	mg/kg	
91-20-3	Naphthalene	ND	0.55	0.21	mg/kg	
85-01-8	Phenanthrene	ND	0.55	0.16	mg/kg	
129-00-0	Pyrene	ND	0.55	0.17	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	46%		30-130%
321-60-8	2-Fluorobiphenyl	55%		30-130%
1718-51-0	Terphenyl-d14	65%		30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: AOI-5_MW-458_0-2'_52213

Lab Sample ID: JB37699-1

Date Sampled: 05/22/13

Matrix: SO - Soil

Date Received: 05/22/13

Method: SW846 8011 SW846 3550B

Percent Solids: 89.2

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Run #1 ^a	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	YZ80878.D	1	05/30/13	AMA	05/28/13	M:OP33357	M:GYZ7155

	Initial Weight	Final Volume
Run #1	30.6 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0027	0.0011	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	Bromofluorobenzene (S)	146%		61-167%
460-00-4	Bromofluorobenzene (S)	120%		61-167%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID: AOI-5_MW-458_0-2'_52213
Lab Sample ID: JB37699-1
Matrix: SO - Soil
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Date Sampled: 05/22/13
Date Received: 05/22/13
Percent Solids: 89.2

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead ^a	32.7	0.83	0.14	mg/kg	1	05/31/13	05/31/13	AMA SW846 6010C ¹	SW846 3050B ²

(1) Instrument QC Batch: M:MA15689

(2) Prep QC Batch: M:MP21094

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Page 1 of 1

4.2
4

Client Sample ID:	AOI-5_MW-456_5-6'_52213	Date Sampled:	05/22/13
Lab Sample ID:	JB37699-2	Date Received:	05/22/13
Matrix:	SO - Soil	Percent Solids:	77.0
Method:	SW846 8260B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C99156.D	1	05/31/13	JTP	n/a	n/a	V3C4404
Run #2							

	Initial Weight
Run #1	6.0 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0398	0.0011	0.00013	mg/kg	
108-88-3	Toluene	0.0243	0.0011	0.00011	mg/kg	
100-41-4	Ethylbenzene	0.0054	0.0011	0.00028	mg/kg	
1330-20-7	Xylene (total)	0.0150	0.0011	0.00015	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00025	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00015	mg/kg	
98-82-8	Isopropylbenzene	0.0014	0.0054	0.000080	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0085	0.0054	0.00023	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0070	0.0054	0.00017	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		65-131%
17060-07-0	1,2-Dichloroethane-D4	104%		70-121%
2037-26-5	Toluene-D8	100%		80-128%
460-00-4	4-Bromofluorobenzene	102%		67-131%

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

4.2
4

Client Sample ID:	AOI-5_MW-456_5-6'_52213	Date Sampled:	05/22/13
Lab Sample ID:	JB37699-2	Date Received:	05/22/13
Matrix:	SO - Soil	Percent Solids:	77.0
Method:	SW846 8270C SW846 3546		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #1 ^a	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	W12846.D	1	06/05/13	AMA	06/03/13	M:OP33459	M:MSW591

Run #1	Initial Weight	Final Volume
Run #1	20.2 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.13	0.044	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.13	0.049	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.13	0.030	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.13	0.031	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.13	0.058	mg/kg	
218-01-9	Chrysene	ND	0.13	0.052	mg/kg	
86-73-7	Fluorene	ND	0.13	0.045	mg/kg	
91-20-3	Naphthalene	ND	0.13	0.050	mg/kg	
85-01-8	Phenanthrene	ND	0.13	0.039	mg/kg	
129-00-0	Pyrene	ND	0.13	0.039	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	49%		30-130%
321-60-8	2-Fluorobiphenyl	60%		30-130%
1718-51-0	Terphenyl-d14	76%		30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID: AOI-5_MW-456_5-6'_52213
Lab Sample ID: JB37699-2
Matrix: SO - Soil
Method: SW846 8011 SW846 3550B
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Date Sampled: 05/22/13

Date Received: 05/22/13

Percent Solids: 77.0

Run #1 ^a	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	YZ80879.D	1	05/30/13	AMA	05/28/13	M:OP33357	M:GYZ7155
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0032	0.0012	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	158%		61-167%		
460-00-4	Bromofluorobenzene (S)	103%		61-167%		

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID: AOI-5_MW-456_5-6'_52213
Lab Sample ID: JB37699-2
Matrix: SO - Soil
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Date Sampled: 05/22/13
Date Received: 05/22/13
Percent Solids: 77.0

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead ^a	7.8	0.91	0.15	mg/kg	1	05/31/13	05/31/13	AMA SW846 6010C ¹	SW846 3050B ²

(1) Instrument QC Batch: M:MA15689

(2) Prep QC Batch: M:MP21094

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL



Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody



CHAIN OF CUSTODY

PAGE / OF /

Bill

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accurtesi.com

16

JB37699: Chain of Custody
Page 1 of 3

Constituents of Concern for Soil
Sunoco Philadelphia Refinery
Philadelphia, Pennsylvania

METALS	CAS No.	Method
Lead (total)	7439-92-1	SW846 6010C/C-D
VOLATILE ORGANIC COMPOUNDS		
1,2-Dichloroethane	107-06-2	
1,2,4-Trimethylbenzene	95-63-6	
1,3,5-Trimethylbenzene	108-67-8	
Benzene	71-43-2	
Cumene	98-82-8	SW846 8260B/C-LD
Ethylbenzene	100-41-4	
Methyl tertiary butyl ether	1634-04-4	
Toluene	108-88-3	
Xylenes (total)	1330-20-7	
Ethylene dibromide	106-93-4	SW846 8011-LD
SEMI-VOLATILE ORGANIC COMPOUNDS		
Anthracene	120-12-7	
Benz[a]anthracene	56-56-3	
Benzo [g, h, i] perylene	191-24-2	
Benzol[aj]pyrene	50-32-8	
Benzofluoranthene	205-99-2	SW846 8270C/D-LD
Chrysene	218-01-9	
Fluorene	86-73-7	
Naphthalene **	91-20-3	
Phenanthrene	85-01-8	
Pyrene	129-00-0	

Notes:

As indicated by the "LD", all samples are to be analyzed using the lowest dilution possible.

**For tank investigations, Naphthalene is to be run using analytical method SW846 8260 and should be appropriately marked on the chain of custody.



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB37699

Client: _____

Project: _____

Date / Time Received: 5/22/2013

Delivery Method: _____

Airbill #'s: _____

Cooler Temps (Initial/Adjusted): #1: (2.8/2.8); 0

Cooler Security **Y or N**

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature **Y or N**

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | _____ | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 1 | |

Quality Control Preservation **Y or N** **N/A**

- | | | | |
|---------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Documentation**Y or N**

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition**Y or N**

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recv'd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions**Y or N** **N/A**

- | | | |
|---|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Sufficient volume recv'd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Comments

Accutest Laboratories
V:732.329.02002235 US Highway 130
F: 732.329.3499Dayton, New Jersey
www.accutest.com**JB37699: Chain of Custody****Page 3 of 3**

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB37699

Sun-Marcus Hook Refinery, Philadelphia, PA
Project No: AOI-5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB37699-1	Collected: 22-MAY-13 10:30 By: LM		Received: 22-MAY-13 By: MB			
AOI-5_MW-458_0-2'_52213						
JB37699-1	SW846 8011	30-MAY-13 18:17	AMA	28-MAY-13 AMA	V8011EDB	
JB37699-1	SM21 2540 B MOD.	31-MAY-13	AMA		%SOL	
JB37699-1	SW846 8260B	31-MAY-13 03:46	JTP		V8260SL	
JB37699-1	SW846 6010C	31-MAY-13 21:19	AMA	31-MAY-13 AMA	PB	
JB37699-1	SW846 8270C	05-JUN-13 13:50	AMA	03-JUN-13 AMA	B8270SL	
JB37699-2	Collected: 22-MAY-13 09:15 By: LM		Received: 22-MAY-13 By: MB			
AOI-5_MW-456_5-6'_52213						
JB37699-2	SW846 8011	30-MAY-13 19:05	AMA	28-MAY-13 AMA	V8011EDB	
JB37699-2	SM21 2540 B MOD.	31-MAY-13	AMA		%SOL	
JB37699-2	SW846 8260B	31-MAY-13 18:46	JTP		V8260SL	
JB37699-2	SW846 6010C	31-MAY-13 21:24	AMA	31-MAY-13 AMA	PB	
JB37699-2	SW846 8270C	05-JUN-13 14:14	AMA	03-JUN-13 AMA	B8270SL	

Accutest Internal Chain of Custody

Page 1 of 1

Job Number: JB37699
Account: AQTAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA
Received: 05/22/13

Sample/Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB37699-1.1	Secured Storage Robert Lofrano	Robert Lofrano	05/23/13 15:59 05/23/13 16:00	Retrieve from Storage Subcontract
JB37699-1.2	Secured Storage Robert Lofrano	Robert Lofrano	05/23/13 15:59 05/23/13 16:00	Retrieve from Storage Subcontract
JB37699-1.5	Secured Storage Juntae Park	Juntae Park GCMS3C	05/30/13 15:48 05/30/13 15:48	Retrieve from Storage Load on Instrument
JB37699-1.5	GCMS3C Juntae Park	Juntae Park Secured Storage	05/31/13 09:45 05/31/13 09:45	Unload from Instrument Return to Storage
JB37699-2.1	Secured Storage Robert Lofrano	Robert Lofrano	05/23/13 15:59 05/23/13 16:00	Retrieve from Storage Subcontract
JB37699-2.2	Secured Storage Robert Lofrano	Robert Lofrano	05/23/13 15:59 05/23/13 16:00	Retrieve from Storage Subcontract
JB37699-2.4	Secured Storage Juntae Park	Juntae Park GCMS3C	05/31/13 10:00 05/31/13 10:01	Retrieve from Storage Load on Instrument
JB37699-2.4	GCMS3C Juntae Park	Juntae Park Secured Storage	06/01/13 09:43 06/01/13 09:43	Unload from Instrument Return to Storage
JB37699-2.5	Secured Storage Juntae Park	Juntae Park GCMS3C	05/30/13 15:48 05/30/13 15:48	Retrieve from Storage Load on Instrument
JB37699-2.5	GCMS3C Juntae Park	Juntae Park Secured Storage	05/31/13 09:45 05/31/13 09:45	Unload from Instrument Return to Storage



GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries



Method Blank Summary

Job Number: JB37699

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3C4403-MB	3C99117.D	1	05/30/13	JTP	n/a	n/a	V3C4403

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37699-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.12	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.14	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.26	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.074	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/kg	
108-88-3	Toluene	ND	1.0	0.11	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.21	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.16	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.14	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	100%
17060-07-0	1,2-Dichloroethane-D4	93%
2037-26-5	Toluene-D8	102%
460-00-4	4-Bromofluorobenzene	106%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JB37699

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3C4404-MB	3C99136.D	1	05/31/13	JTP	n/a	n/a	V3C4404

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37699-2

6.1.2
6

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.12	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.14	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.26	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.074	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/kg	
108-88-3	Toluene	ND	1.0	0.11	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.21	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.16	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.14	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	98%
17060-07-0	1,2-Dichloroethane-D4	89%
2037-26-5	Toluene-D8	102%
460-00-4	4-Bromofluorobenzene	104%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JB37699

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3C4403-BS	3C99118.D	1	05/30/13	JTP	n/a	n/a	V3C4403

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37699-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	53.7	107	79-121
107-06-2	1,2-Dichloroethane	50	53.0	106	73-132
100-41-4	Ethylbenzene	50	54.4	109	78-119
98-82-8	Isopropylbenzene	50	56.2	112	75-122
1634-04-4	Methyl Tert Butyl Ether	100	105	105	73-122
108-88-3	Toluene	50	56.2	112	78-121
95-63-6	1,2,4-Trimethylbenzene	50	53.9	108	76-121
108-67-8	1,3,5-Trimethylbenzene	50	54.6	109	74-121
1330-20-7	Xylene (total)	150	165	110	79-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	65-131%
17060-07-0	1,2-Dichloroethane-D4	99%	70-121%
2037-26-5	Toluene-D8	102%	80-128%
460-00-4	4-Bromofluorobenzene	99%	67-131%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB37699

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3C4404-BS	3C99137.D	1	05/31/13	JTP	n/a	n/a	V3C4404

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37699-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	48.8	98	79-121
107-06-2	1,2-Dichloroethane	50	49.6	99	73-132
100-41-4	Ethylbenzene	50	52.0	104	78-119
98-82-8	Isopropylbenzene	50	54.3	109	75-122
1634-04-4	Methyl Tert Butyl Ether	100	101	101	73-122
108-88-3	Toluene	50	53.3	107	78-121
95-63-6	1,2,4-Trimethylbenzene	50	52.9	106	76-121
108-67-8	1,3,5-Trimethylbenzene	50	53.5	107	74-121
1330-20-7	Xylene (total)	150	159	106	79-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	65-131%
17060-07-0	1,2-Dichloroethane-D4	101%	70-121%
2037-26-5	Toluene-D8	102%	80-128%
460-00-4	4-Bromofluorobenzene	98%	67-131%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB37699

Account: AQTAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB38345-8MS	3C99147.D	1	05/31/13	JTP	n/a	n/a	V3C4404
JB38345-8	3C99139.D	1	05/31/13	JTP	n/a	n/a	V3C4404

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37699-2

CAS No.	Compound	JB38345-8		Spike	MS	MS	Limits
		ug/kg	Q	ug/kg	ug/kg	%	
71-43-2	Benzene	ND		46	44.9	98	47-130
107-06-2	1,2-Dichloroethane	ND		46	38.2	83	46-135
100-41-4	Ethylbenzene	ND		46	49.9	109	30-139
98-82-8	Isopropylbenzene	ND		46	54.9	119	30-140
1634-04-4	Methyl Tert Butyl Ether	ND		46	36.4	79	50-127
108-88-3	Toluene	ND		46	48.5	105	38-136
95-63-6	1,2,4-Trimethylbenzene	ND		46	51.9	113	20-145
108-67-8	1,3,5-Trimethylbenzene	ND		46	52.9	115	24-142
1330-20-7	Xylene (total)	ND		138	151	109	31-140

CAS No.	Surrogate Recoveries	MS	JB38345-8	Limits
1868-53-7	Dibromofluoromethane	93%	102%	65-131%
17060-07-0	1,2-Dichloroethane-D4	84%	100%	70-121%
2037-26-5	Toluene-D8	102%	102%	80-128%
460-00-4	4-Bromofluorobenzene	100%	104%	67-131%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: JB37699

Account: AQTAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB38033-1MS	3C99121.D	1	05/30/13	JTP	n/a	n/a	V3C4403
JB38033-1MSD	3C99122.D	1	05/31/13	JTP	n/a	n/a	V3C4403
JB38033-1	3C99120.D	1	05/30/13	JTP	n/a	n/a	V3C4403

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37699-1

CAS No.	Compound	JB38033-1		Spike	MS	MS	MSD	MSD	RPD	Limits Rec/RPD
		ug/kg	Q	ug/kg	ug/kg	%	ug/kg	%		
71-43-2	Benzene	ND		58.7	57.6	98	59.4	101	3	47-130/22
107-06-2	1,2-Dichloroethane	ND		58.7	54.5	93	56.7	97	4	46-135/21
100-41-4	Ethylbenzene	ND		58.7	59.0	101	61.2	104	4	30-139/25
98-82-8	Isopropylbenzene	ND		58.7	61.7	105	63.8	109	3	30-140/27
1634-04-4	Methyl Tert Butyl Ether	ND		58.7	56.2	96	61.3	104	9	50-127/21
108-88-3	Toluene	ND		58.7	60.5	103	62.3	106	3	38-136/24
95-63-6	1,2,4-Trimethylbenzene	ND		58.7	59.2	101	61.4	105	4	20-145/28
108-67-8	1,3,5-Trimethylbenzene	ND		58.7	60.1	102	62.1	106	3	24-142/28
1330-20-7	Xylene (total)	ND		176	178	101	186	106	4	31-140/26

CAS No.	Surrogate Recoveries	MS	MSD	JB38033-1	Limits
1868-53-7	Dibromofluoromethane	98%	99%	100%	65-131%
17060-07-0	1,2-Dichloroethane-D4	92%	93%	97%	70-121%
2037-26-5	Toluene-D8	102%	102%	102%	80-128%
460-00-4	4-Bromofluorobenzene	98%	98%	108%	67-131%

* = Outside of Control Limits.

6.4.1
6

Duplicate Summary

Job Number: JB37699

Account: AQTAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB38345-9DUP	3C99149.D	1	05/31/13	JTP	n/a	n/a	V3C4404
JB38345-9	3C99140.D	1	05/31/13	JTP	n/a	n/a	V3C4404

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37699-2

CAS No.	Compound	JB38345-9		Q	RPD	Limits
		ug/kg	DUP ug/kg			
71-43-2	Benzene	ND	ND	nc	20	
107-06-2	1,2-Dichloroethane	ND	ND	nc	10	
100-41-4	Ethylbenzene	ND	ND	nc	19	
98-82-8	Isopropylbenzene	ND	ND	nc	15	
1634-04-4	Methyl Tert Butyl Ether	ND	ND	nc	16	
108-88-3	Toluene	ND	ND	nc	24	
95-63-6	1,2,4-Trimethylbenzene	ND	ND	nc	10	
108-67-8	1,3,5-Trimethylbenzene	ND	ND	nc	10	
1330-20-7	Xylene (total)	ND	ND	nc	24	

CAS No.	Surrogate Recoveries	DUP	JB38345-9	Limits
1868-53-7	Dibromofluoromethane	101%	101%	65-131%
17060-07-0	1,2-Dichloroethane-D4	94%	95%	70-121%
2037-26-5	Toluene-D8	102%	102%	80-128%
460-00-4	4-Bromofluorobenzene	105%	103%	67-131%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JB37699

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	V3C4359-BFB	Injection Date:	05/07/13
Lab File ID:	3C98231.D	Injection Time:	09:38
Instrument ID:	GCMS3C		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	9537	18.0	Pass
75	30.0 - 60.0% of mass 95	24826	46.8	Pass
95	Base peak, 100% relative abundance	53021	100.0	Pass
96	5.0 - 9.0% of mass 95	3626	6.84	Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) ^a Pass
174	50.0 - 120.0% of mass 95	45546	85.9	Pass
175	5.0 - 9.0% of mass 174	3521	6.64	(7.73) ^a Pass
176	95.0 - 101.0% of mass 174	44570	84.1	(97.9) ^a Pass
177	5.0 - 9.0% of mass 176	3147	5.94	(7.06) ^b Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3C4359-IC4359	3C98232.D	05/07/13	10:08	00:30	Initial cal 5
V3C4359-IC4359	3C98233.D	05/07/13	10:38	01:00	Initial cal 2
V3C4359-IC4359	3C98234.D	05/07/13	11:07	01:29	Initial cal 1
V3C4359-IC4359	3C98235.D	05/07/13	11:37	01:59	Initial cal 0.5
V3C4359-IC4359	3C98236.D	05/07/13	12:06	02:28	Initial cal 10
V3C4359-IC4359	3C98237.D	05/07/13	12:36	02:58	Initial cal 20
V3C4359-ICC4359	3C98238.D	05/07/13	13:05	03:27	Initial cal 50
V3C4359-IC4359	3C98239.D	05/07/13	13:35	03:57	Initial cal 100
V3C4359-IC4359	3C98240.D	05/07/13	14:04	04:26	Initial cal 200
V3C4359-ICV4359	3C98243.D	05/07/13	19:06	09:28	Initial cal verification 50

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JB37699

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	V3C4403-BFB	Injection Date:	05/30/13
Lab File ID:	3C99114.D	Injection Time:	20:25
Instrument ID:	GCMS3C		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	10295	16.5	Pass
75	30.0 - 60.0% of mass 95	29016	46.5	Pass
95	Base peak, 100% relative abundance	62453	100.0	Pass
96	5.0 - 9.0% of mass 95	4328	6.93	Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) ^a Pass
174	50.0 - 120.0% of mass 95	54061	86.6	Pass
175	5.0 - 9.0% of mass 174	4237	6.78	(7.84) ^a Pass
176	95.0 - 101.0% of mass 174	51512	82.5	(95.3) ^a Pass
177	5.0 - 9.0% of mass 176	3684	5.90	(7.15) ^b Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3C4403-CC4359	3C99115.D	05/30/13	20:54	00:29	Continuing cal 50
V3C4403-MB	3C99117.D	05/30/13	21:53	01:28	Method Blank
V3C4403-BS	3C99118.D	05/30/13	22:23	01:58	Blank Spike
JB38033-1	3C99120.D	05/30/13	23:21	02:56	(used for QC only; not part of job JB37699)
JB38033-1MS	3C99121.D	05/30/13	23:51	03:26	Matrix Spike
JB38033-1MSD	3C99122.D	05/31/13	00:20	03:55	Matrix Spike Duplicate
ZZZZZZ	3C99124.D	05/31/13	01:19	04:54	(unrelated sample)
ZZZZZZ	3C99125.D	05/31/13	01:49	05:24	(unrelated sample)
ZZZZZZ	3C99126.D	05/31/13	02:18	05:53	(unrelated sample)
ZZZZZZ	3C99127.D	05/31/13	02:48	06:23	(unrelated sample)
ZZZZZZ	3C99128.D	05/31/13	03:17	06:52	(unrelated sample)
JB37699-1	3C99129.D	05/31/13	03:46	07:21	AOI-5_MW-458_0-2'_52213
ZZZZZZ	3C99131.D	05/31/13	04:46	08:21	(unrelated sample)
ZZZZZZ	3C99132.D	05/31/13	05:15	08:50	(unrelated sample)

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JB37699

Account: AQTAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	V3C4404-BFB	Injection Date:	05/31/13
Lab File ID:	3C99133.D	Injection Time:	06:56
Instrument ID:	GCMS3C		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	10308	16.1	Pass
75	30.0 - 60.0% of mass 95	29187	45.7	Pass
95	Base peak, 100% relative abundance	63936	100.0	Pass
96	5.0 - 9.0% of mass 95	4213	6.59	Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) ^a Pass
174	50.0 - 120.0% of mass 95	52733	82.5	Pass
175	5.0 - 9.0% of mass 174	4083	6.39	(7.74) ^a Pass
176	95.0 - 101.0% of mass 174	51224	80.1	(97.1) ^a Pass
177	5.0 - 9.0% of mass 176	3411	5.34	(6.66) ^b Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3C4404-CC4359	3C99134.D	05/31/13	07:26	00:30	Continuing cal 20
V3C4404-MB	3C99136.D	05/31/13	08:25	01:29	Method Blank
V3C4404-BS	3C99137.D	05/31/13	09:09	02:13	Blank Spike
JB38345-8	3C99139.D	05/31/13	10:23	03:27	(used for QC only; not part of job JB37699)
JB38345-9	3C99140.D	05/31/13	10:53	03:57	(used for QC only; not part of job JB37699)
ZZZZZZ	3C99141.D	05/31/13	11:22	04:26	(unrelated sample)
ZZZZZZ	3C99142.D	05/31/13	11:52	04:56	(unrelated sample)
ZZZZZZ	3C99143.D	05/31/13	12:22	05:26	(unrelated sample)
ZZZZZZ	3C99144.D	05/31/13	12:51	05:55	(unrelated sample)
ZZZZZZ	3C99145.D	05/31/13	13:21	06:25	(unrelated sample)
ZZZZZZ	3C99146.D	05/31/13	13:50	06:54	(unrelated sample)
JB38345-8MS	3C99147.D	05/31/13	14:20	07:24	Matrix Spike
JB38345-9DUP	3C99149.D	05/31/13	15:19	08:23	Duplicate
ZZZZZZ	3C99150.D	05/31/13	15:49	08:53	(unrelated sample)
ZZZZZZ	3C99151.D	05/31/13	16:18	09:22	(unrelated sample)
ZZZZZZ	3C99152.D	05/31/13	16:48	09:52	(unrelated sample)
ZZZZZZ	3C99153.D	05/31/13	17:18	10:22	(unrelated sample)
ZZZZZZ	3C99154.D	05/31/13	17:47	10:51	(unrelated sample)
ZZZZZZ	3C99155.D	05/31/13	18:17	11:21	(unrelated sample)
JB37699-2	3C99156.D	05/31/13	18:46	11:50	AOI-5_MW-456_5-6'_52213

Volatile Internal Standard Area Summary

Page 1 of 1

Job Number: JB37699

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	V3C4403-CC4359	Injection Date:	05/30/13
Lab File ID:	3C99115.D	Injection Time:	20:54
Instrument ID:	GCMS3C	Method:	SW846 8260B

	IS 1 AREA	IS 2 AREA	IS 3 AREA	IS 4 AREA	IS 5 AREA	
Lab Sample ID	IS 1 AREA	IS 2 AREA	IS 3 AREA	IS 4 AREA	IS 5 AREA	RT
Check Std	58554	7.37	197655	9.59	283611	10.51
Upper Limit ^a	117108	7.87	395310	10.09	567222	11.01
Lower Limit ^b	29277	6.87	98828	9.09	141806	10.01
V3C4403-MB	58114	7.37	192371	9.59	275674	10.51
V3C4403-BS	59436	7.37	186976	9.59	270219	10.51
JB38033-1	51368	7.36	148413	9.59	214214	10.51
JB38033-1MS	53563	7.36	199238	9.59	284442	10.51
JB38033-1MSD	54580	7.37	194426	9.59	281564	10.51
ZZZZZZ	51124	7.36	190811	9.59	274238	10.51
ZZZZZZ	52410	7.37	192289	9.59	274752	10.51
ZZZZZZ	59807	7.36	193406	9.59	278661	10.51
ZZZZZZ	54344	7.36	194294	9.59	276672	10.51
ZZZZZZ	61932	7.36	184386	9.59	265828	10.51
JB37699-1	50930	7.36	190309	9.59	274372	10.51
ZZZZZZ	57030	7.37	189692	9.59	273553	10.51
ZZZZZZ	49232	7.37	177092	9.59	257833	10.51
					197723	13.64
					80797	15.93

IS 1 = Tert Butyl Alcohol-D9

IS 2 = Pentafluorobenzene

IS 3 = 1,4-Difluorobenzene

IS 4 = Chlorobenzene-D5

IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Page 1 of 1

Job Number: JB37699

Account: AQTAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	V3C4404-CC4359	Injection Date:	05/31/13
Lab File ID:	3C99134.D	Injection Time:	07:26
Instrument ID:	GCMS3C	Method:	SW846 8260B

	IS 1 AREA	IS 2 AREA	IS 3 AREA	IS 4 AREA	IS 5 AREA	
Lab Sample ID	IS 1 AREA	IS 2 AREA	IS 3 AREA	IS 4 AREA	IS 5 AREA	RT
Check Std	58894	7.36	180193	9.59	260336	10.51
Upper Limit ^a	117788	7.86	360386	10.09	520672	11.01
Lower Limit ^b	29447	6.86	90097	9.09	130168	10.01
V3C4404-MB	44053	7.37	179870	9.59	257228	10.51
V3C4404-BS	59161	7.37	189100	9.59	272966	10.51
JB38345-8	75327	7.36	189985	9.59	274468	10.50
JB38345-9	60937	7.37	183828	9.59	264407	10.50
ZZZZZZ	62985	7.36	189358	9.59	271267	10.51
ZZZZZZ	50012	7.37	180259	9.59	258432	10.51
ZZZZZZ	58762	7.37	186900	9.59	269404	10.51
ZZZZZZ	62674	7.37	188734	9.59	270060	10.51
ZZZZZZ	58448	7.37	181724	9.59	262156	10.51
ZZZZZZ	61413	7.36	188297	9.59	272213	10.51
JB38345-8MS	31636	7.37	174209	9.59	248840	10.51
JB38345-9DUP	56150	7.37	182181	9.59	264321	10.51
ZZZZZZ	55641	7.37	173202	9.59	246605	10.51
ZZZZZZ	57148	7.36	181250	9.59	263327	10.51
ZZZZZZ	56048	7.36	187078	9.59	269492	10.51
ZZZZZZ	47843	7.37	181022	9.59	263921	10.51
ZZZZZZ	48934	7.37	186859	9.59	271922	10.51
ZZZZZZ	57226	7.37	182993	9.59	265287	10.51
JB37699-2	59264	7.37	187390	9.59	271969	10.51

IS 1 = Tert Butyl Alcohol-D9

IS 2 = Pentafluorobenzene

IS 3 = 1,4-Difluorobenzene

IS 4 = Chlorobenzene-D5

IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Surrogate Recovery Summary

Page 1 of 1

Job Number: JB37699

Account: AQTAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Method: SW846 8260B

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JB37699-1	3C99129.D	99.0	93.0	102.0	107.0
JB37699-2	3C99156.D	101.0	104.0	100.0	102.0
JB38033-1MS	3C99121.D	98.0	92.0	102.0	98.0
JB38033-1MSD	3C99122.D	99.0	93.0	102.0	98.0
JB38345-8MS	3C99147.D	93.0	84.0	102.0	100.0
JB38345-9DUP	3C99149.D	101.0	94.0	102.0	105.0
V3C4403-BS	3C99118.D	100.0	99.0	102.0	99.0
V3C4403-MB	3C99117.D	100.0	93.0	102.0	106.0
V3C4404-BS	3C99137.D	101.0	101.0	102.0	98.0
V3C4404-MB	3C99136.D	98.0	89.0	102.0	104.0

Surrogate Compounds	Recovery Limits
------------------------	--------------------

S1 = Dibromofluoromethane	65-131%
S2 = 1,2-Dichloroethane-D4	70-121%
S3 = Toluene-D8	80-128%
S4 = 4-Bromofluorobenzene	67-131%

Initial Calibration Summary

Page 1 of 5

Job Number: JB37699

Sample: V3C4359-ICC4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C98238.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Response Factor Report MS3C

Method : C:\MSDCHEM\1\METHODS\M3C4359.M (RTE Integrator)

Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

Last Update : Mon May 13 17:58:56 2013

Response via : Initial Calibration

Calibration Files

5	=3C98232.D	10	=3C98236.D	0.5	=3C98235.D	50	=3C98238.D
100	=3C98239.D	1	=3C98234.D	200	=3C98240.D	20	=3C98237.D
2	=3C98233.D		=				

Compound

	5	10	0.5	50	100	1	200	20	2	Avg	%RSD
<hr/>											
1) I Tert Butyl Alcohol-d9						-----ISTD-----					
2) 1,4-dioxane	0.110	0.132		0.133	0.123		0.134	0.132		0.127	7.27
3) tertiary butyl alcohol	1.946	2.238		2.089	1.958	2.207	2.006	2.229	1.715	2.048	8.79
4) Ethanol										0.000	-1.00
5) I pentafluorobenzene						-----ISTD-----					
6) chlorodifluoromethane	0.517	0.534		0.513	0.504	0.540	0.520	0.508	0.518	0.519	2.37
7) dichlorodifluoromethane	0.753	0.775		0.742	0.734	0.742	0.740	0.765	0.643	0.737	5.51
8) chloromethane	0.731	0.725		0.692	0.682	0.878	0.688	0.726	0.733	0.732	8.56
9) vinyl chloride	0.826	0.839	0.994	0.821	0.821	0.955	0.840	0.859	0.845	0.866	7.28
10) bromomethane	0.403	0.418	0.456	0.394	0.393	0.463	0.395	0.409	0.391	0.414	6.67
11) chloroethane	0.384	0.406	0.431	0.385	0.380	0.461	0.380	0.401	0.388	0.402	6.89
12) Vinyl Bromide	0.374	0.410		0.397		0.404		0.400	0.416	0.400	3.61
13) Pentane	0.975	0.971		0.896		0.948		0.886	0.975	0.942	4.31
14) trichlorofluoromethane	0.834	0.864	0.909	0.821	0.806	0.862	0.817	0.854	0.771	0.837	4.78
15) ethyl ether	0.281	0.277		0.257	0.254		0.251	0.262	0.282	0.266	5.01
16) acrolein	0.067	0.066		0.069		0.066		0.066	0.071	0.067	3.10
17) 1,1-dichloroethene	0.469	0.449		0.440	0.434	0.587	0.444	0.434	0.449	0.463	11.09
18) acetone	0.026		0.030	0.028		0.027	0.030			0.028	5.75
19) allyl chloride	0.297	0.312	0.220	0.294	0.291	0.309	0.299	0.283	0.277	0.287	9.57
20) acetonitrile	0.028	0.030		0.033	0.032		0.031	0.030	0.041	0.032	12.53
21) iodomethane	0.753	0.775	0.628	0.761	0.760	0.823	0.774	0.742	0.687	0.745	7.55
22) iso-butyl alcohol	0.014	0.013		0.013	0.014		0.012	0.013		0.013	4.57
23) carbon disulfide											

6.9.1
6

Initial Calibration Summary

Page 2 of 5

Job Number: JB37699

Sample: V3C4359-ICC4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C98238.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

24)	methylene chloride	1.632 0.536	1.654 0.522	1.425 0.045	1.603 0.053	1.589 0.058	1.775 0.059	1.625 0.056	1.569 0.055	1.523 0.055	1.599 0.054	5.96 7.11
25)	methyl acetate	0.045 0.532	0.053 0.528	0.053 0.484	0.059 0.499	0.059 0.491	0.056 0.662	0.055 0.500	0.055 0.485	0.055 0.513	0.054 0.522	8.98 10.63
26)	methyl tert butyl ether	1.145 0.532	1.127 0.528	1.179 0.484	1.118 0.499	1.118 0.491	1.213 0.662	1.081 0.500	1.076 0.485	1.098 0.513	1.128 0.522	3.97 10.63
27)	trans-1,2-dichloroethene	0.532 1.668	0.528 1.789	0.484 1.690	0.499 1.739	0.491 1.722	0.662 1.686	0.500 1.716	0.485 1.748	0.513 1.643	0.522 1.711	8.98 2.61
28)	di-isopropyl ether	1.301 1.301	1.357 1.304	1.304 1.315	1.285 1.210	1.210 1.262	1.262 1.312	1.234 1.234	1.287 1.287	1.287 1.287	3.51 3.51	
30)	2-butanone	0.035 0.035	0.039 0.039	0.042 0.042	0.043 0.043	0.040 0.040	0.038 0.038	0.040 0.040	0.038 0.040	0.040 0.040	7.87 7.87	
31)	1,1-dichloroethane	0.907 0.907	0.932 0.932	0.840 0.840	0.894 0.882	0.882 0.995	0.892 0.892	0.867 0.867	0.843 0.843	0.895 0.895	5.34 5.34	
32)	chloroprene	0.748 0.748	0.808 0.808	0.563 0.563	0.787 0.760	0.760 0.725	0.725 0.774	0.781 0.781	0.761 0.761	0.745 0.745	9.71 9.71	
33)	acrylonitrile	0.116 0.116	0.117 0.117	0.122 0.122	0.124 0.106	0.106 0.117	0.117 0.116	0.090 0.090	0.090 0.114	0.114 0.114	9.46 9.46	
34)	vinyl acetate	0.065 0.065	0.074 0.074	0.079 0.079	0.082 0.074	0.079 0.079	0.074 0.074	0.076 0.076	0.076 0.076	0.076 0.076	7.81 7.81	
35)	ethyl acetate	0.050 0.050	0.049 0.049	0.051 0.051	0.053 0.053	0.048 0.048	0.048 0.048	0.048 0.048	0.048 0.050	0.050 0.050	3.52 3.52	
36)	2,2-dichloropropane	0.783 0.783	0.773 0.773	0.708 0.708	0.731 0.707	0.707 0.859	0.859 0.716	0.716 0.713	0.719 0.719	0.745 0.745	6.84 6.84	
37)	cis-1,2-dichloroethene	0.550 0.550	0.554 0.554	0.569 0.569	0.530 0.524	0.524 0.676	0.676 0.533	0.533 0.527	0.547 0.547	0.557 0.557	8.49 8.49	
38)	propionitrile	0.046 0.046	0.046 0.046	0.048 0.048	0.049 0.049	0.041 0.041	0.046 0.046	0.045 0.045	0.040 0.040	0.045 0.045	6.74 6.74	
39)	Methyl Acrylate	0.040 0.040	0.046 0.046	0.053 0.053	0.054 0.054	0.051 0.051	0.046 0.046	0.046 0.046	0.046 0.046	0.048 0.048	10.99 10.99	
40)	bromochloromethane	0.219 0.219	0.225 0.225	0.185 0.226	0.226 0.223	0.223 0.217	0.217 0.225	0.225 0.220	0.212 0.212	0.217 0.217	5.87 5.87	
41)	tetrahydrofuran	0.147 0.147	0.130 0.130	0.129 0.129	0.129 0.129	0.129 0.129	0.118 0.127	0.127 0.165	0.165 0.135	0.135 11.59	11.59 11.59	
42)	chloroform	0.804 0.804	0.859 0.859	0.879 0.830	0.830 0.821	0.821 0.960	0.960 0.827	0.827 0.813	0.826 0.826	0.846 0.846	5.71 5.71	
43)	tert-Butyl Formate	0.304 0.304	0.314 0.314	0.320 0.320	0.320 0.320	0.320 0.320	0.307 0.318	0.318 0.314	0.314 0.314	0.314 0.314	1.98 1.98	
44)	dibromofluoromethane (s)	0.409 0.409	0.410 0.410	0.518 0.425	0.425 0.418	0.418 0.431	0.431 0.433	0.433 0.426	0.463 0.463	0.437 0.437	7.85 7.85	
45)	1,2-dichloroethane-d4 (s)	0.440 0.440	0.428 0.445	0.445 0.437	0.437 0.432	0.432 0.452	0.452 0.427	0.427 0.426	0.475 0.475	0.440 0.440	3.57 3.57	
46)	freon 113	0.339 0.339	0.384 0.384	0.373 0.359	0.359 0.359	0.366 0.368	0.368 0.332	0.332 0.332	0.360 0.360	0.360 0.360	5.20 5.20	
47)	methacrylonitrile	0.209 0.209	0.209 0.209	0.216 0.217	0.217 0.217	0.205 0.204	0.204 0.211	0.211 0.211	0.210 0.210	0.210 0.210	2.34 2.34	
48)	1,1,1-trichloroethane	0.765 0.765	0.785 0.785	0.636 0.759	0.759 0.745	0.745 0.814	0.814 0.760	0.760 0.740	0.724 0.724	0.748 0.748	6.59 6.59	
49)	Cyclohexane	0.822 0.822	0.821 0.821	0.747 0.747	0.807 0.792	0.792 0.912	0.912 0.811	0.786 0.786	0.764 0.764	0.807 0.807	5.83 5.83	
50)	Tert Amyl Alcohol	0.047 0.047	0.047 0.047	0.052 0.053	0.053 0.048	0.050 0.048	0.050 0.041	0.048 0.041	0.048 0.048	0.048 0.048	8.25 8.25	
51)	2,2,4-trimethylpentane	2.019 2.019	2.114 2.114	2.009 2.009	1.933 1.933	1.933 1.986	1.986 1.987	1.987 2.404	2.404 2.404	2.065 2.065	7.72 7.72	
52)	tert-amyl methyl ether	1.185 1.185	1.213 1.213	1.379 1.138	1.138 1.142	1.142 1.240	1.240 1.108	1.108 1.172	1.160 1.160	1.193 1.193	6.74 6.74	

Initial Calibration Summary

Page 3 of 5

Job Number: JB37699

Sample: V3C4359-ICC4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C98238.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

53)	I	1,4-difluorobenzene	-----	ISTD-----								
54)		epichlorohydrin	0.022 0.024	0.025 0.025	0.023	0.023	0.023	0.024	0.024	4.39		
55)	n-butyl alcohol	0.007 0.007	0.008 0.009	0.007 0.008	0.008	0.008	0.007	0.008	0.008	9.58		
56)	carbon tetrachloride	0.482 0.491	0.403 0.476	0.462 0.523	0.474 0.462	0.438	0.468	0.468	7.22			
57)	1,1-dichloropropene	0.494 0.513	0.427 0.498	0.476 0.543	0.491 0.491	0.481	0.476	0.489	0.489	6.39		
58)	hexane	0.577 0.568	0.505 0.472		0.477 0.508	0.670	0.539	0.539	13.12			
59)	benzene	1.487 1.505	1.483 1.454	1.405 1.744	1.438 1.411	1.421	1.483	1.483	7.02			
60)	heptane	0.311 0.319	0.228 0.309	0.311 0.325	0.326 0.326	0.304	0.302	0.304	0.304	9.73		
61)	isopropyl acetate	0.491 0.517		0.542 0.555	0.481 0.524	0.522 0.522	0.439	0.509	0.509	7.29		
62)	1,2-dichloroethane	0.383 0.385	0.294 0.384	0.375 0.416	0.370 0.370	0.376 0.376	0.347	0.370	0.370	9.12		
63)	trichloroethylene	0.353 0.360	0.315 0.352	0.341 0.341	0.397 0.351	0.333 0.333	0.319	0.347	0.347	7.03		
64)	ethyl acrylate	0.301 0.317		0.343 0.341	0.324 0.329	0.329 0.311	0.334	0.325	0.325	4.52		
65)	Tert-Amyl ethyl ether	0.468 0.480		0.460 0.440		0.433 0.463	0.441	0.455	0.455	3.79		
66)	2-nitropropane	0.089 0.090		0.087 0.085		0.079 0.082	0.099	0.087	0.087	7.40		
67)	2-chloroethyl vinyl ether	0.112 0.119	0.113 0.127	0.126 0.126	0.109 0.125	0.122 0.122	0.111	0.118	0.118	6.02		
68)	methyl methacrylate	0.057 0.066		0.073 0.074		0.071 0.066	0.050	0.065	0.065	13.55		
69)	1,2-dichloropropane	0.345 0.356		0.356 0.348	0.375 0.356	0.345 0.345	0.334	0.352	0.352	3.42		
70)	methylcyclohexane	0.633 0.685	0.511 0.642	0.616 0.667	0.632 0.632	0.646 0.646	0.629	0.629	0.629	7.78		
71)	dibromomethane	0.162 0.164	0.145 0.163	0.162 0.178	0.160 0.160	0.157 0.157	0.146	0.160	0.160	6.19		
72)	bromodichloromethane	0.409 0.417	0.351 0.425	0.425 0.418	0.469 0.426	0.426 0.408	0.376	0.411	0.411	8.04		
73)	cis-1,3-dichloropropene	0.528 0.537	0.505 0.537	0.525 0.525	0.575 0.532	0.517 0.517	0.488	0.527	0.527	4.58		
74)	toluene-d8 (s)	1.209 1.175		1.221 1.184	1.422 1.238	1.222 1.222	1.317	1.249	1.249	6.58		
75)	4-methyl-2-pentanone	0.096 0.098		0.099 0.103		0.096 0.093	0.086	0.096	0.096	5.72		
76)	toluene	0.867 0.891	0.765 0.870	0.849 0.994	0.877 0.877	0.845 0.845	0.808	0.863	0.863	7.27		
77)	3-methyl-1-butanol	0.007 0.007		0.008 0.008	0.007 0.008	0.007 0.007	0.006	0.007	0.007	11.35		
78)	trans-1,3-dichloropropene	0.443 0.445	0.359 0.450	0.441 0.507	0.440 0.440	0.428 0.428	0.410	0.436	0.436	8.91		
79)	ethyl methacrylate	0.334 0.348	0.270 0.360	0.364 0.351	0.354 0.354	0.342 0.342	0.297	0.336	0.336	9.38		
80)	1,1,2-trichloroethane	0.198 0.204	0.174 0.202	0.197 0.213	0.194 0.194	0.190 0.190	0.180	0.195	0.195	6.25		
81)	2-hexanone	0.077 0.081		0.088 0.089		0.085 0.080	0.070	0.081	0.081	8.18		
82)	I chlorobenzene-d5	-----	-----	ISTD-----								
83)	tetrachloroethene	-----	-----	ISTD-----								

Initial Calibration Summary

Page 4 of 5

Job Number: JB37699

Sample: V3C4359-ICC4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C98238.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

84)	1,3-dichloropropane	0.495 0.500 0.424 0.506 0.497 0.533 0.515 0.484 0.458	0.490	6.58
		0.540 0.544 0.462 0.544 0.537 0.593 0.529 0.520 0.496	0.529	6.83
85)	butyl acetate	0.207 0.208 0.223 0.228 0.211 0.215 0.217 0.194	0.213	4.94
86)	dibromochloromethane	0.357 0.364 0.355 0.375 0.378 0.381 0.378 0.348 0.312	0.361	6.01
87)	1,2-dibromoethane	0.291 0.291 0.241 0.299 0.297 0.304 0.287 0.284 0.260	0.284	7.13
88)	3,3-Dimethyl-1-Butanol	0.032 0.030 0.029 0.035 0.036 0.030 0.034 0.032 0.030	0.032	8.05
89)	chlorobenzene	1.144 1.186 1.003 1.160 1.131 1.309 1.151 1.126 1.071	1.142	7.25
90)	1,1,1,2-tetrachloroethane	0.414 0.421 0.367 0.430 0.427 0.456 0.435 0.413 0.378	0.416	6.65
91)	ethylbenzene	2.071 2.086 1.945 2.056 2.010 2.313 2.057 2.013 1.967	2.058	5.19
92)	m,p-xylene	0.799 0.801 0.720 0.797 0.776 0.857 0.801 0.764 0.753	0.785	4.89
93)	o-xylene	0.779 0.776 0.655 0.781 0.767 0.876 0.789 0.748 0.756	0.770	7.38
94)	styrene	1.201 1.236 1.186 1.272 1.257 1.404 1.294 1.219 1.152	1.247	5.92
95)	BUTYL ACRYLATE	0.596 0.627 0.673 0.663 0.627 0.686	0.645	5.31
96)	bromoform	0.215 0.224 0.238 0.244 0.222 0.241 0.220 0.201	0.226	6.51
97)	I 1,4-dichlorobenzene-d	-----ISTD-----		
98)	isopropylbenzene	4.322 4.379 3.876 4.149 4.056 4.793 4.089 4.124 3.986	4.197	6.47
99)	4-bromofluorobenzene (s)	1.282 1.124 1.085 1.051 1.077 1.109	1.121	7.39
100)	bromobenzene	0.966 1.007 0.912 0.946 0.936 1.079 0.936 0.949 0.913	0.960	5.51
101)	cyclohexanone	0.050 0.043 0.048 0.039 0.036 0.040 0.043	0.043	11.05
102)	1,1,2,2-tetrachloroethane	0.799 0.777 0.781 0.773 0.770 0.842 0.726 0.739 0.722	0.770	4.89
103)	trans-1,4-dichloro-2-butene	0.211 0.201 0.205 0.204 0.237 0.194 0.192 0.224	0.209	7.31
104)	1,2,3-trichloropropane	0.222 0.210 0.208 0.207 0.166 0.194 0.199 0.209	0.202	8.27
105)	n-propylbenzene	4.963 4.937 4.645 4.727 4.566 5.577 4.598 4.684 4.610	4.812	6.66
106)	4-Ethyltoluene	3.896 4.170 4.616 3.977 3.856 4.094 3.914 3.992 4.002	4.057	5.70
107)	2-chlorotoluene	0.986 1.007 0.908 0.963 0.942 1.174 0.968 0.944 0.925	0.980	8.04
108)	4-chlorotoluene	1.015 0.982 0.989 0.967 0.934 1.102 0.963 0.933 0.985	0.986	5.17
109)	1,3,5-trimethylbenzene	3.566 3.574 3.538 3.402 3.353 4.062 3.431 3.391 3.317	3.515	6.42
110)	tert-butylbenzene	3.130 3.220 2.893 3.018 2.954 3.496 3.052 2.942 2.849	3.061	6.53
111)	pentachloroethane	0.632 0.646 0.629 0.625 0.631 0.649 0.636 0.607 0.553	0.623	4.66
112)	1,2,4-trimethylbenzene	3.555 3.494 3.508 3.410 3.320 3.975 3.382 3.346 3.357	3.483	5.79
113)	sec-butylbenzene			

L6.1
6.65

Initial Calibration Summary

Job Number: JB37699

Sample: V3C4359-ICC4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C98238.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

114)	1,3-dichlorobenzene	4.623	4.652	4.380	4.483	4.381	5.244	4.455	4.390	4.276	4.543	6.36
		1.887	1.881	1.709	1.828	1.789	2.102	1.826	1.813	1.804	1.849	5.86
115)	p-isopropyltoluene	3.845	3.846	3.743	3.687	3.617	4.356	3.705	3.580	3.558	3.771	6.43
116)	1,4-dichlorobenzene	1.839	1.899	1.860	1.818	1.797	2.293	1.834	1.788	1.860	1.888	8.25
117)	1,2-dichlorobenzene	1.736	1.743	1.757	1.702	1.699	2.025	1.699	1.683	1.640	1.743	6.40
118)	1,4-Diethylbenzene	2.076	2.333	2.709	2.264	2.219	2.361	2.303	2.280	2.255	2.311	7.36
119)	n-butylbenzene	1.965	2.016	1.755	1.945	1.890	2.351	1.966	1.893	1.904	1.965	8.26
120)	1,2,4,5-Tetramethylbenzene	3.428	3.756	3.995	3.675	3.534	3.709	3.470	3.622	3.711	3.655	4.68
121)	1,2-dibromo-3-chloropropane	0.147	0.139		0.132	0.136		0.119	0.132	0.158	0.138	9.10
122)	1,3,5-Trichlorobenzene	1.463	1.498	1.435	1.476	1.416	1.730	1.353	1.416	1.433	1.469	7.23
123)	1,2,4-trichlorobenzene	1.144	1.148	1.048	1.200	1.152	1.320	1.056	1.122	1.060	1.139	7.52
124)	hexachlorobutadiene	0.831	0.837	0.797	0.794	0.761	1.006	0.711	0.810	0.786	0.815	9.93
125)	naphthalene	2.008	2.014	2.413	2.208	2.155	2.362	1.853	2.016	1.972	2.111	8.86
126)	1,2,3-trichlorobenzene	1.014	0.982	0.991	1.041	0.980	1.095	0.850	0.996	0.957	0.990	6.67
127)	hexachloroethane	0.764	0.730	0.763	0.715	0.699	0.783	0.708	0.693	0.699	0.728	4.61
128)	Benzyl chloride	1.562	1.485	1.729	1.503	1.503	1.668	1.445	1.485	1.535	1.546	6.06

(#) = Out of Range ### Number of calibration levels exceeded format ###

M3C4359.M

Mon May 13 18:10:51 2013

MS3C

L6.9
6

Initial Calibration Verification

Job Number: JB37699

Sample: V3C4359-ICV4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C98243.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\MSDChem\1\DATA\3C98243.D Vial: 13
 Acq On : 7 May 2013 7:06 pm Operator: juntaep
 Sample : icv4359-50 Inst : MS3C
 Misc : MS47462,V3C4359,5.0,,,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3C4359.M (RTE Integrator)
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Mon May 13 17:58:56 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I Tert Butyl Alcohol-d9	1.000	1.000	0.0	107	0.00	7.37
2	1,4-dioxane	0.127	0.133	-4.7	107	0.00	11.24
3	tertiary butyl alcohol	2.048	2.279	-11.3	117	0.00	7.49
4	Ethanol			-----NA-----			
5	I pentafluorobenzene	1.000	1.000	0.0	105	0.00	9.59
6	chlorodifluoromethane	0.519	0.611	-17.7	125	0.00	3.98
7	dichlorodifluoromethane	0.737	0.717	2.7	101	0.00	3.96
8	chloromethane	0.732	0.665	9.2	101	0.00	4.32
9	vinyl chloride	0.866	0.801	7.5	102	0.00	4.57
10	bromomethane	0.414	0.386	6.8	103	0.00	5.23
11	chloroethane	0.402	0.375	6.7	102	0.00	5.41
12	Vinyl Bromide	0.400	0.390	2.5	103	0.00	5.76
13	Pentane	0.942	0.894	5.1	105	0.00	5.94
14	trichlorofluoromethane	0.837	0.799	4.5	102	0.01	5.85
15	ethyl ether	0.266	0.255	4.1	104	0.00	6.27
16	acrolein	0.067	0.070	-4.5	107	0.00	6.53
17	1,1-dichloroethene	0.463	0.439	5.2	104	0.00	6.70
18	acetone	0.028	0.032	-14.3	114	-0.01	6.75
19	allyl chloride	0.287	0.297	-3.5	106	0.00	7.23
20	acetonitrile	0.032	0.032	0.0	104	0.00	7.20
21	iodomethane	0.745	0.750	-0.7	103	0.00	6.98
22	iso-butyl alcohol	0.013	0.013	0.0	103	0.00	9.88
23	carbon disulfide	1.599	1.599	0.0	105	0.00	7.10
24	methylene chloride	0.504	0.477	5.4	104	0.00	7.42
25	methyl acetate	0.054	0.059	-9.3	106	0.00	7.21
26	methyl tert butyl ether	1.128	1.131	-0.3	106	0.00	7.74
27	trans-1,2-dichloroethene	0.522	0.490	6.1	103	0.00	7.79
28	di-isopropyl ether	1.711	1.803	-5.4	109	0.00	8.32
29	ethyl tert-butyl ether	1.287	1.353	-5.1	108	0.00	8.78
30	2-butanone	0.040	0.043	-7.5	106	0.00	9.06
31	1,1-dichloroethane	0.895	0.884	1.2	104	0.00	8.35
32	chloroprene	0.745	0.811	-8.9	108	0.00	8.46
33	acrylonitrile	0.114	0.125	-9.6	107	0.00	7.75
34	vinyl acetate	0.076	0.077	-1.3	101	0.00	8.33
35	ethyl acetate	0.050	0.052	-4.0	107	0.00	9.07
36	2,2-dichloropropane	0.745	0.743	0.3	106	0.00	9.09
37	cis-1,2-dichloroethene	0.557	0.527	5.4	104	0.00	9.09
38	propionitrile	0.045	0.047	-4.4	104	0.00	9.16
39	Methyl Acrylate	0.048	0.051	-6.2	101	0.00	9.14
40	bromochloromethane	0.217	0.220	-1.4	102	0.00	9.40
41	tetrahydrofuran	0.135	0.130	3.7	105	0.00	9.44

Initial Calibration Verification

Job Number: JB37699

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: V3C4359-ICV4359

Lab FileID: 3C98243.D

42	chloroform	0.846	0.812	4.0	102	0.00	9.46
43	tert-Butyl Formate	0.314	0.340	-8.3	112	0.00	9.48
44 S	dibromofluoromethane (s)	0.437	0.440	-0.7	108	0.00	9.66
45 S	1,2-dichloroethane-d4 (s)	0.440	0.451	-2.5	108	0.00	10.08
46	freon 113	0.360	0.367	-1.9	103	0.00	6.66
47	methacrylonitrile	0.210	0.211	-0.5	102	0.00	9.34
48	1,1,1-trichloroethane	0.748	0.749	-0.1	103	0.00	9.71
49	Cyclohexane	0.807	0.797	1.2	104	0.00	9.78
50	Tert Amyl Alcohol	0.048	0.049	-2.1	99	0.00	10.01
51	2,2,4-trimethylpentane	2.065	2.074	-0.4	108	0.00	10.13
52	tert-amyl methyl ether	1.193	1.215	-1.8	112	0.00	10.16
53 I	1,4-difluorobenzene	1.000	1.000	0.0	105	0.00	10.52
54	epichlorohydrin	0.024	0.027	-12.5	113	0.00	11.77
55	n-butyl alcohol	0.008	0.009	-12.5	107	0.00	10.64
56	carbon tetrachloride	0.468	0.466	0.4	102	0.00	9.91
57	1,1-dichloropropene	0.489	0.489	0.0	103	0.00	9.88
58	hexane	0.539	0.604	-12.1	125	0.00	8.08
59	benzene	1.483	1.420	4.2	102	0.00	10.15
60	heptane	0.304	0.309	-1.6	104	0.00	10.31
61	isopropyl acetate	0.509	0.579	-13.8	112	0.00	10.06
62	1,2-dichloroethane	0.370	0.369	0.3	101	0.00	10.16
63	trichloroethene	0.347	0.342	1.4	102	0.00	10.86
64	ethyl acrylate	0.325	0.339	-4.3	103	0.00	10.85
65	Tert-Amyl ethyl ether	0.455	0.471	-2.6	107	0.00	11.01
66	2-nitropropane	0.087	0.086	1.1	104	0.00	11.63
67	2-chloroethyl vinyl ether	0.118	0.136	-15.3	111	0.00	11.64
68	methyl methacrylate	0.065	0.071	-9.2	102	0.00	11.12
69	1,2-dichloropropane	0.352	0.349	0.9	103	0.00	11.13
70	methylcyclohexane	0.629	0.718	-14.1	117	0.00	11.07
71	dibromomethane	0.160	0.161	-0.6	103	0.00	11.29
72	bromodichloromethane	0.411	0.416	-1.2	102	0.00	11.41
73	cis-1,3-dichloropropene	0.527	0.532	-0.9	104	0.00	11.86
74 S	toluene-d8 (s)	1.249	1.266	-1.4	108	0.00	12.15
75	4-methyl-2-pentanone	0.096	0.101	-5.2	107	0.00	11.95
76	toluene	0.863	0.862	0.1	104	0.00	12.22
77	3-methyl-1-butanol	0.007	0.008	-14.3	107	0.00	11.97
78	trans-1,3-dichloropropene	0.436	0.446	-2.3	104	0.00	12.41
79	ethyl methacrylate	0.336	0.359	-6.8	104	0.00	12.40
80	1,1,2-trichloroethane	0.195	0.201	-3.1	104	0.00	12.63
81	2-hexanone	0.081	0.089	-9.9	106	0.00	12.79
82 I	chlorobenzene-d5	1.000	1.000	0.0	105	0.00	13.64
83	tetrachloroethene	0.490	0.495	-1.0	103	0.00	12.80
84	1,3-dichloropropane	0.529	0.532	-0.6	102	0.00	12.81
85	butyl acetate	0.213	0.220	-3.3	103	0.00	12.86
86	dibromochloromethane	0.361	0.365	-1.1	102	0.00	13.07
87	1,2-dibromoethane	0.284	0.291	-2.5	102	0.00	13.22
88	3,3-Dimethyl-1-Butanol	0.032	0.034	-6.3	103	0.00	12.96
89	chlorobenzene	1.142	1.131	1.0	102	0.00	13.67
90	1,1,1,2-tetrachloroethane	0.416	0.425	-2.2	104	0.00	13.73
91	ethylbenzene	2.058	2.038	1.0	104	0.00	13.72
92	m,p-xylene	0.785	0.782	0.4	103	0.00	13.83
93	o-xylene	0.770	0.769	0.1	103	0.00	14.24
94	styrene	1.247	1.246	0.1	103	0.00	14.25
95	BUTYL ACRYLATE	0.645	0.662	-2.6	103	0.00	14.06
96	bromoform	0.226	0.237	-4.9	105	0.00	14.52
97 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	15.93
98	isopropylbenzene	4.197	4.102	2.3	104	0.00	14.57

Initial Calibration Verification

Job Number: JB37699

Sample: V3C4359-ICV4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C98243.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

99	S	4-bromofluorobenzene (s)	1.121	1.140	-1.7	111	0.00	14.78
100		bromobenzene	0.960	0.929	3.2	103	0.00	14.98
101		cyclohexanone	0.043	0.096	-123.3#	212#	0.00	14.75
102		1,1,2,2-tetrachloroethane	0.770	0.760	1.3	103	0.00	14.88
103		trans-1,4-dichloro-2-bute	0.209	0.203	2.9	104	0.00	14.92
104		1,2,3-trichloropropane	0.202	0.204	-1.0	103	0.00	14.96
105		n-propylbenzene	4.812	4.676	2.8	104	0.00	14.98
106		4-Ethyltoluene	4.057	4.044	0.3	107	0.00	15.08
107		2-chlorotoluene	0.980	0.953	2.8	104	0.00	15.13
108		4-chlorotoluene	0.986	0.954	3.2	104	0.00	15.23
109		1,3,5-trimethylbenzene	3.515	3.376	4.0	104	0.00	15.13
110		tert-butylbenzene	3.061	2.979	2.7	104	0.00	15.47
111		pentachloroethane	0.623	0.627	-0.6	106	0.00	15.56
112		1,2,4-trimethylbenzene	3.483	3.336	4.2	103	0.00	15.52
113		sec-butylbenzene	4.543	4.446	2.1	104	0.00	15.68
114		1,3-dichlorobenzene	1.849	1.814	1.9	104	0.00	15.88
115		p-isopropyltoluene	3.771	3.660	2.9	104	0.00	15.80
116		1,4-dichlorobenzene	1.888	1.808	4.2	105	0.00	15.96
117		1,2-dichlorobenzene	1.743	1.689	3.1	104	0.00	16.35
118		1,4-Diethylbenzene	2.311	2.349	-1.6	109	0.00	16.18
119		n-butylbenzene	1.965	1.943	1.1	105	0.00	16.21
120		1,2,4,5-Tetramethylbenzen	3.655	3.766	-3.0	108	0.00	16.96
121		1,2-dibromo-3-chloropropa	0.138	0.136	1.4	108	0.00	17.12
122		1,3,5-Trichlorobenzene	1.469	1.508	-2.7	107	0.00	17.30
123		1,2,4-trichlorobenzene	1.139	1.213	-6.5	106	0.00	17.93
124		hexachlorobutadiene	0.815	0.794	2.6	105	0.00	18.04
125		naphthalene	2.111	2.162	-2.4	103	0.00	18.21
126		1,2,3-trichlorobenzene	0.990	1.038	-4.8	105	0.00	18.46
127		hexachloroethane	0.728	0.697	4.3	102	0.00	16.60
128		Benzyl chloride	1.546	1.764	-14.1	124	0.00	16.07

(#) = Out of Range
 3C98238.D M3C4359.M

SPCC's out = 0 CCC's out = 0
 Mon May 13 18:02:41 2013 MS3C

Continuing Calibration Summary

Job Number: JB37699

Sample: V3C4403-CC4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C99115.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\3C\v3c4402-03\3C99115.D Vial: 26
 Acq On : 30 May 2013 8:54 pm Operator: juntaep
 Sample : cc4359-50 Inst : MS3C
 Misc : MS49084,V3C4403,5.0,,,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3C4359.M (RTE Integrator)
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Mon Sep 13 11:48:20 2010
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I Tert Butyl Alcohol-d9	1.000	1.000	0.0	123	0.00	7.37
2	1,4-dioxane	0.127	0.140	-10.2	130	0.00	11.23
3	tertiary butyl alcohol	2.048	2.253	-10.0	133	0.00	7.49
4	Ethanol			-----NA-----			
5	I pentafluorobenzene	1.000	1.000	0.0	124	-0.01	9.59
6	chlorodifluoromethane	0.519	0.468	9.8	113	0.00	3.99
7	dichlorodifluoromethane	0.737	0.672	8.8	112	0.01	3.97
8	chloromethane	0.732	0.658	10.1	117	0.00	4.32
9	vinyl chloride	0.866	0.813	6.1	122	0.00	4.57
10	bromomethane	0.414	0.426	-2.9	134	0.00	5.24
11	chloroethane	0.402	0.392	2.5	126	0.00	5.42
12	Vinyl Bromide			-----NA-----			
13	Pentane			-----NA-----			
14	trichlorofluoromethane	0.837	0.828	1.1	125	0.01	5.85
15	ethyl ether	0.266	0.275	-3.4	133	0.00	6.27
16	acrolein	0.067	0.062	7.5	111	0.00	6.53
17	1,1-dichloroethene	0.463	0.499	-7.8	140	0.00	6.70
18	acetone	0.028	0.033	-17.9	138	-0.01	6.75
19	allyl chloride	0.287	0.315	-9.8	132	0.00	7.23
20	acetonitrile	0.032	0.030	6.3	114	-0.01	7.19
21	iodomethane	0.745	0.870	-16.8	141	0.00	6.98
22	iso-butyl alcohol	0.013	0.011	15.4	106	0.00	9.88
23	carbon disulfide	1.599	1.785	-11.6	138	0.00	7.11
24	methylene chloride	0.504	0.540	-7.1	140	0.00	7.41
25	methyl acetate	0.054	0.061	-13.0	130	0.00	7.21
26	methyl tert butyl ether	1.128	1.219	-8.1	135	0.00	7.73
27	trans-1,2-dichloroethene	0.522	0.561	-7.5	139	0.00	7.79
28	di-isopropyl ether	1.711	1.650	3.6	117	-0.01	8.32
29	ethyl tert-butyl ether	1.287	1.319	-2.5	124	0.00	8.78
30	2-butanone	0.040	0.043	-7.5	127	-0.01	9.05
31	1,1-dichloroethane	0.895	0.961	-7.4	133	0.00	8.36
32	chloroprene	0.745	0.766	-2.8	120	0.00	8.46
33	acrylonitrile	0.114	0.125	-9.6	127	0.00	7.74
34	vinyl acetate	0.076	0.081	-6.6	127	0.00	8.33
35	ethyl acetate	0.050	0.051	-2.0	126	0.00	9.06
36	2,2-dichloropropane	0.745	0.677	9.1	115	0.00	9.09
37	cis-1,2-dichloroethene	0.557	0.592	-6.3	138	0.00	9.09
38	propionitrile	0.045	0.049	-8.9	128	0.00	9.15
39	Methyl Acrylate	0.048	0.055	-14.6	129	-0.01	9.14
40	bromochloromethane	0.217	0.250	-15.2	137	0.00	9.40
41	tetrahydrofuran	0.135	0.120	11.1	114	-0.01	9.43

Continuing Calibration Summary

Job Number: JB37699

Sample: V3C4403-CC4359

Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Lab FileID: 3C99115.D

42	chloroform	0.846	0.901	-6.5	134	0.00	9.45
43	tert-Butyl Formate	0.314	0.319	-1.6	124	0.00	9.47
44 S	dibromofluoromethane (s)	0.437	0.435	0.5	126	-0.01	9.65
45 S	1,2-dichloroethane-d4 (s)	0.440	0.430	2.3	122	0.00	10.07
46	freon 113	0.360	0.399	-10.8	132	0.00	6.67
47	methacrylonitrile	0.210	0.200	4.8	114	0.00	9.33
48	1,1,1-trichloroethane	0.748	0.834	-11.5	136	0.00	9.70
49	Cyclohexane	0.807	0.921	-14.1	141	0.00	9.78
50	Tert Amyl Alcohol			-----NA-----			
51	2,2,4-trimethylpentane	2.065	2.094	-1.4	129	0.00	10.13
52	tert-amyl methyl ether	1.193	1.204	-0.9	131	0.00	10.16
53 I	1,4-difluorobenzene	1.000	1.000	0.0	125	0.00	10.51
54	epichlorohydrin	0.024	0.023	4.2	116	0.00	11.77
55	n-butyl alcohol	0.008	0.008	0.0	120	0.00	10.63
56	carbon tetrachloride	0.468	0.516	-10.3	136	0.00	9.91
57	1,1-dichloropropene	0.489	0.519	-6.1	131	0.00	9.88
58	hexane	0.539	0.465	13.7	116	0.00	8.08
59	benzene	1.483	1.553	-4.7	134	0.00	10.14
60	heptane	0.304	0.297	2.3	120	0.00	10.30
61	isopropyl acetate	0.509	0.940	-84.7#	217#	0.00	10.05
62	1,2-dichloroethane	0.370	0.384	-3.8	125	0.00	10.16
63	trichloroethylene	0.347	0.381	-9.8	136	-0.01	10.85
64	ethyl acrylate			-----NA-----			
65	Tert-Amyl ethyl ether			-----NA-----			
66	2-nitropropane	0.087	0.077	11.5	111	0.00	11.63
67	2-chloroethyl vinyl ether	0.118	0.125	-5.9	123	0.00	11.63
68	methyl methacrylate	0.065	0.077	-18.5	133	0.00	11.12
69	1,2-dichloropropane	0.352	0.366	-4.0	129	-0.01	11.12
70	methylcyclohexane	0.629	0.692	-10.0	135	0.00	11.07
71	dibromomethane	0.160	0.175	-9.4	135	0.00	11.28
72	bromodichloromethane	0.411	0.450	-9.5	133	0.00	11.40
73	cis-1,3-dichloropropene	0.527	0.546	-3.6	127	0.00	11.85
74 S	toluene-d8 (s)	1.249	1.269	-1.6	130	0.00	12.14
75	4-methyl-2-pentanone	0.096	0.102	-6.2	129	0.00	11.94
76	toluene	0.863	0.953	-10.4	137	0.00	12.22
77	3-methyl-1-butanol	0.007	0.008	-14.3	122	0.00	11.96
78	trans-1,3-dichloropropene	0.436	0.456	-4.6	127	0.00	12.41
79	ethyl methacrylate	0.336	0.367	-9.2	128	0.00	12.39
80	1,1,2-trichloroethane	0.195	0.214	-9.7	133	0.00	12.62
81	2-hexanone	0.081	0.094	-16.0	135	0.00	12.79
82 I	chlorobenzene-d5	1.000	1.000	0.0	128	0.00	13.64
83	tetrachloroethene	0.490	0.556	-13.5	141	0.00	12.79
84	1,3-dichloropropane	0.529	0.552	-4.3	130	0.00	12.81
85	butyl acetate	0.213	0.206	3.3	119	0.00	12.86
86	dibromochloromethane	0.361	0.397	-10.0	136	0.00	13.07
87	1,2-dibromoethane	0.284	0.312	-9.9	133	0.00	13.21
88	3,3-Dimethyl-1-Butanol	0.032	0.031	3.1	115	0.00	12.96
89	chlorobenzene	1.142	1.228	-7.5	136	0.00	13.67
90	1,1,1,2-tetrachloroethane	0.416	0.464	-11.5	138	0.00	13.73
91	ethylbenzene	2.058	2.208	-7.3	138	0.00	13.72
92	m,p-xylene	0.785	0.859	-9.4	138	0.00	13.82
93	o-xylene	0.770	0.834	-8.3	137	0.00	14.23
94	styrene	1.247	1.336	-7.1	134	0.00	14.25
95	BUTYL ACRYLATE			-----NA-----			
96	bromoform	0.226	0.252	-11.5	135	0.00	14.52
97 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	125	0.00	15.93
98	isopropylbenzene	4.197	4.626	-10.2	139	0.00	14.57

Continuing Calibration Summary

Job Number: JB37699

Sample: V3C4403-CC4359

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Lab FileID: 3C99115.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

99	S	4-bromofluorobenzene (s)	1.121	1.091	2.7	126	0.00	14.78
100		bromobenzene	0.960	1.049	-9.3	138	0.00	14.97
101		cyclohexanone	0.043	0.023	46.5#	61	0.00	14.74
102		1,1,2,2-tetrachloroethane	0.770	0.835	-8.4	135	0.00	14.88
103		trans-1,4-dichloro-2-bute	0.209	0.188	10.0	114	0.00	14.92
104		1,2,3-trichloropropane	0.202	0.227	-12.4	137	0.00	14.96
105		n-propylbenzene	4.812	5.183	-7.7	137	0.00	14.98
106		4-Ethyltoluene			-----NA-----			
107		2-chlorotoluene	0.980	1.069	-9.1	139	0.00	15.12
108		4-chlorotoluene	0.986	1.067	-8.2	138	0.00	15.22
109		1,3,5-trimethylbenzene	3.515	3.796	-8.0	139	0.00	15.12
110		tert-butylbenzene	3.061	3.865	-26.3#	160	0.00	15.47
111		pentachloroethane	0.623	0.664	-6.6	133	0.00	15.56
112		1,2,4-trimethylbenzene	3.483	3.737	-7.3	137	0.00	15.52
113		sec-butylbenzene	4.543	5.005	-10.2	139	0.00	15.68
114		1,3-dichlorobenzene	1.849	2.010	-8.7	137	0.00	15.87
115		p-isopropyltoluene	3.771	4.069	-7.9	138	0.00	15.80
116		1,4-dichlorobenzene	1.888	2.000	-5.9	137	0.00	15.95
117		1,2-dichlorobenzene	1.743	1.871	-7.3	137	0.00	16.35
118		1,4-Diethylbenzene			-----NA-----			
119		n-butylbenzene	1.965	2.031	-3.4	130	0.00	16.21
120		1,2,4,5-Tetramethylbenzen			-----NA-----			
121		1,2-dibromo-3-chloropropa	0.138	0.136	1.4	128	0.00	17.11
122		1,3,5-Trichlorobenzene	1.469	1.605	-9.3	136	0.00	17.29
123		1,2,4-trichlorobenzene	1.139	1.271	-11.6	132	0.00	17.93
124		hexachlorobutadiene	0.815	0.861	-5.6	135	0.00	18.04
125		naphthalene	2.111	2.325	-10.1	131	0.00	18.20
126		1,2,3-trichlorobenzene	0.990	1.104	-11.5	132	0.00	18.45
127		hexachloroethane	0.728	0.841	-15.5	147	0.00	16.60
128		Benzyl chloride	1.546	1.154	25.4#	96	0.00	16.07

(##) = Out of Range
3C98238.D M3C4359.MSPCC's out = 0 CCC's out = 0
Fri May 31 09:11:27 2013 ACCNJ

Continuing Calibration Summary

Page 1 of 3

Job Number: JB37699

Sample: V3C4404-CC4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C99134.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\3C\v3c4404\3C99134.D Vial: 2
 Acq On : 31 May 2013 7:26 am Operator: juntaep
 Sample : cc4359-20 Inst : MS3C
 Misc : MS48749,V3C4404,5.0,,,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3C4359.M (RTE Integrator)
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Mon Sep 13 11:48:20 2010
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.	
1	I Tert Butyl Alcohol-d9	1.000	1.000	0.0	139	-0.01	7.36	
2	1,4-dioxane	0.127	0.118	7.1	124	0.00	11.23	
3	tertiary butyl alcohol	2.048	1.877	8.3	117	0.00	7.49	
4	Ethanol			-----NA-----				
5	I pentafluorobenzene	1.000	1.000	0.0	115	-0.01	9.59	
6	chlorodifluoromethane	0.519	0.423	18.5	96	0.00	3.98	
7	dichlorodifluoromethane	0.737	0.698	5.3	105	0.01	3.97	
8	chloromethane	0.732	0.661	9.7	105	0.00	4.32	
9	vinyl chloride	0.866	0.851	1.7	114	0.00	4.57	
10	bromomethane	0.414	0.450	-8.7	126	0.00	5.24	
11	chloroethane	0.402	0.415	-3.2	119	0.00	5.42	
12	Vinyl Bromide			-----NA-----				
13	Pentane			-----NA-----				
14	trichlorofluoromethane	0.837	0.890	-6.3	120	0.00	5.84	
15	ethyl ether	0.266	0.252	5.3	111	0.00	6.27	
16	acrolein	0.067	0.061	9.0	106	0.00	6.53	
17	1,1-dichloroethene	0.463	0.445	3.9	118	0.00	6.69	
18	acetone	0.028	0.029	-3.6	112	0.00	6.76	
19	allyl chloride	0.287	0.274	4.5	112	0.00	7.23	
20	acetonitrile	0.032	0.036	-12.5	136	-0.01	7.19	
21	iodomethane	0.745	0.757	-1.6	117	0.00	6.97	
22	iso-butyl alcohol	0.013	0.012	7.7	102	0.00	9.88	
23	carbon disulfide	1.599	1.597	0.1	117	0.00	7.11	
24	methylene chloride	0.504	0.527	-4.6	125	0.00	7.42	
25	methyl acetate	0.054	0.054	0.0	114	0.00	7.21	
26	methyl tert butyl ether	1.128	1.108	1.8	119	0.00	7.73	
27	trans-1,2-dichloroethene	0.522	0.501	4.0	119	0.00	7.79	
28	di-isopropyl ether	1.711	1.458	14.8	96	-0.01	8.32	
29	ethyl tert-butyl ether	1.287	1.186	7.8	104	0.00	8.78	
30	2-butanone	0.040	0.038	5.0	116	0.00	9.06	
31	1,1-dichloroethane	0.895	0.837	6.5	111	0.00	8.35	
32	chloroprene	0.745	0.660	11.4	97	-0.01	8.45	
33	acrylonitrile	0.114	0.115	-0.9	114	0.00	7.74	
34	vinyl acetate	0.076	0.068	10.5	106	0.00	8.33	
35	ethyl acetate	0.050	0.044	12.0	106	0.00	9.06	
36	2,2-dichloropropane	0.745	0.604	18.9	97	0.00	9.08	
37	cis-1,2-dichloroethene	0.557	0.532	4.5	116	-0.01	9.08	
38	propionitrile	0.045	0.045	0.0	113	0.00	9.15	
39	Methyl Acrylate	0.048	0.048	0.0	121	0.00	9.14	
40	bromochloromethane	0.217	0.224	-3.2	117	0.00	9.40	
41	tetrahydrofuran	0.135	0.112	17.0	102	-0.01	9.43	

6.9.4
6

Continuing Calibration Summary

Job Number: JB37699

Sample: V3C4404-CC4359

Account: AQTPAW Aquaterra Technologies, Inc.

Lab FileID: 3C99134.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

42	chloroform	0.846	0.798	5.7	113	0.00	9.45
43	tert-Butyl Formate	0.314	0.296	5.7	107	0.00	9.47
44 S	dibromofluoromethane (s)	0.437	0.443	-1.4	120	-0.01	9.65
45 S	1,2-dichloroethane-d4 (s)	0.440	0.428	2.7	116	0.00	10.07
46	freon 113	0.360	0.337	6.4	105	0.00	6.66
47	methacrylonitrile	0.210	0.185	11.9	104	0.00	9.33
48	1,1,1-trichloroethane	0.748	0.746	0.3	116	0.00	9.70
49	Cyclohexane	0.807	0.805	0.2	118	0.00	9.77
50	Tert Amyl Alcohol			-----NA-----			
51	2,2,4-trimethylpentane	2.065	1.725	16.5	100	0.00	10.13
52	tert-amyl methyl ether	1.193	1.106	7.3	109	0.00	10.16
53 I	1,4-difluorobenzene	1.000	1.000	0.0	118	0.00	10.51
54	epichlorohydrin	0.024	0.021	12.5	104	0.00	11.77
55	n-butyl alcohol	0.008	0.007	12.5	113	0.00	10.63
56	carbon tetrachloride	0.468	0.453	3.2	116	0.00	9.90
57	1,1-dichloropropene	0.489	0.453	7.4	111	0.00	9.88
58	hexane	0.539	0.374	30.6#	87	0.00	8.08
59	benzene	1.483	1.368	7.8	114	0.00	10.14
60	heptane	0.304	0.220	27.6#	85	0.00	10.30
61	isopropyl acetate	0.509	0.831	-63.3#	188	0.00	10.05
62	1,2-dichloroethane	0.370	0.341	7.8	107	0.00	10.16
63	trichloroethylene	0.347	0.331	4.6	117	0.00	10.86
64	ethyl acrylate			-----NA-----			
65	Tert-Amyl ethyl ether			-----NA-----			
66	2-nitropropane	0.087	0.071	18.4	102	-0.01	11.62
67	2-chloroethyl vinyl ether	0.118	0.113	4.2	109	0.00	11.63
68	methyl methacrylate	0.065	0.067	-3.1	120	0.00	11.12
69	1,2-dichloropropane	0.352	0.314	10.8	107	-0.01	11.12
70	methylcyclohexane	0.629	0.587	6.7	107	0.00	11.07
71	dibromomethane	0.160	0.157	1.9	118	0.00	11.28
72	bromodichloromethane	0.411	0.395	3.9	114	0.00	11.40
73	cis-1,3-dichloropropene	0.527	0.472	10.4	108	0.00	11.85
74 S	toluene-d8 (s)	1.249	1.275	-2.1	123	0.00	12.14
75	4-methyl-2-pentanone	0.096	0.093	3.1	117	0.00	11.94
76	toluene	0.863	0.827	4.2	115	0.00	12.21
77	3-methyl-1-butanol	0.007	0.007	0.0	117	0.00	11.96
78	trans-1,3-dichloropropene	0.436	0.404	7.3	111	0.00	12.41
79	ethyl methacrylate	0.336	0.318	5.4	110	0.00	12.39
80	1,1,2-trichloroethane	0.195	0.190	2.6	118	0.00	12.62
81	2-hexanone	0.081	0.085	-4.9	126	0.00	12.79
82 I	chlorobenzene-d5	1.000	1.000	0.0	122	0.00	13.64
83	tetrachloroethene	0.490	0.461	5.9	116	0.00	12.79
84	1,3-dichloropropane	0.529	0.489	7.6	114	0.00	12.80
85	butyl acetate	0.213	0.191	10.3	107	0.00	12.86
86	dibromochloromethane	0.361	0.343	5.0	120	0.00	13.07
87	1,2-dibromoethane	0.284	0.276	2.8	118	0.00	13.21
88	3,3-Dimethyl-1-Butanol	0.032	0.028	12.5	107	0.00	12.95
89	chlorobenzene	1.142	1.069	6.4	115	-0.01	13.66
90	1,1,1,2-tetrachloroethane	0.416	0.396	4.8	116	0.00	13.73
91	ethylbenzene	2.058	1.892	8.1	114	0.00	13.72
92	m,p-xylene	0.785	0.730	7.0	116	0.00	13.82
93	o-xylene	0.770	0.726	5.7	118	0.00	14.23
94	styrene	1.247	1.122	10.0	112	0.00	14.24
95	BUTYL ACRYLATE			-----NA-----			
96	bromoform	0.226	0.215	4.9	119	-0.01	14.51
97 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	119	0.00	15.93
98	isopropylbenzene	4.197	3.997	4.8	116	0.00	14.57

Continuing Calibration Summary

Job Number: JB37699

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Lab FileID: 3C99134.D

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

99	S	4-bromofluorobenzene (s)	1.121	1.113	0.7	120	-0.01	14.77
100		bromobenzene	0.960	0.918	4.4	115	0.00	14.97
101		cyclohexanone	0.043	0.021	51.2#	61	0.00	14.74
102		1,1,2,2-tetrachloroethane	0.770	0.744	3.4	120	0.00	14.88
103		trans-1,4-dichloro-2-bute	0.209	0.171	18.2	106	0.00	14.92
104		1,2,3-trichloropropane	0.202	0.203	-0.5	122	0.00	14.95
105		n-propylbenzene	4.812	4.508	6.3	115	0.00	14.97
106		4-Ethyltoluene			-----NA-----			
107		2-chlorotoluene	0.980	0.936	4.5	118	0.00	15.12
108		4-chlorotoluene	0.986	0.917	7.0	117	0.00	15.22
109		1,3,5-trimethylbenzene	3.515	3.301	6.1	116	0.00	15.12
110		tert-butylbenzene	3.061	3.277	-7.1	133	0.00	15.47
111		pentachloroethane	0.623	0.588	5.6	116	-0.01	15.55
112		1,2,4-trimethylbenzene	3.483	3.219	7.6	115	0.00	15.51
113		sec-butylbenzene	4.543	4.328	4.7	118	0.00	15.68
114		1,3-dichlorobenzene	1.849	1.720	7.0	113	0.00	15.87
115		p-isopropyltoluene	3.771	3.480	7.7	116	0.00	15.80
116		1,4-dichlorobenzene	1.888	1.720	8.9	115	0.00	15.95
117		1,2-dichlorobenzene	1.743	1.601	8.1	113	0.00	16.34
118		1,4-Diethylbenzene			-----NA-----			
119		n-butylbenzene	1.965	1.720	12.5	108	0.00	16.21
120		1,2,4,5-Tetramethylbenzen			-----NA-----			
121		1,2-dibromo-3-chloropropa	0.138	0.126	8.7	114	0.00	17.11
122		1,3,5-Trichlorobenzene	1.469	1.345	8.4	113	0.00	17.29
123		1,2,4-trichlorobenzene	1.139	1.015	10.9	108	0.00	17.93
124		hexachlorobutadiene	0.815	0.741	9.1	109	0.00	18.04
125		naphthalene	2.111	1.878	11.0	111	0.00	18.20
126		1,2,3-trichlorobenzene	0.990	0.888	10.3	106	0.00	18.45
127		hexachloroethane	0.728	0.684	6.0	118	0.00	16.60
128		Benzyl chloride	1.546	1.077	30.3#	87	0.00	16.07

(##) = Out of Range
3C98237.D M3C4359.MSPCC's out = 0 CCC's out = 0
Fri May 31 14:23:16 2013 ACCNJ



GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4402-03\
 Data File : 3C99129.D
 Acq On : 31 May 2013 3:46 am
 Operator : juntaep
 Sample : jb37699-1
 Misc : MS48843,V3C4403,6.0,,,1
 ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 31 09:18:08 2013
 Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 28 09:01:21 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) Tert Butyl Alcohol-d9	7.361	65	50930	500.00	ug/L	-0.01
5) pentafluorobenzene	9.589	168	190309	50.00	ug/L	-0.01
53) 1,4-difluorobenzene	10.510	114	274372	50.00	ug/L	0.00
82) chlorobenzene-d5	13.638	117	213769	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	15.928	152	88953	50.00	ug/L	0.00

System Monitoring Compounds

44) dibromofluoromethane (s)	9.647	113	82481	49.59	ug/L	-0.01
Spiked Amount	50.000	Range	65 - 131	Recovery	=	99.18%
45) 1,2-dichloroethane-d4 (s)	10.071	65	77878	46.46	ug/L	0.00
Spiked Amount	50.000	Range	70 - 121	Recovery	=	92.92%
74) toluene-d8 (s)	12.142	98	350258	51.11	ug/L	0.00
Spiked Amount	50.000	Range	80 - 128	Recovery	=	102.22%
99) 4-bromofluorobenzene (s)	14.778	95	106752	53.51	ug/L	0.00
Spiked Amount	50.000	Range	67 - 131	Recovery	=	107.02%

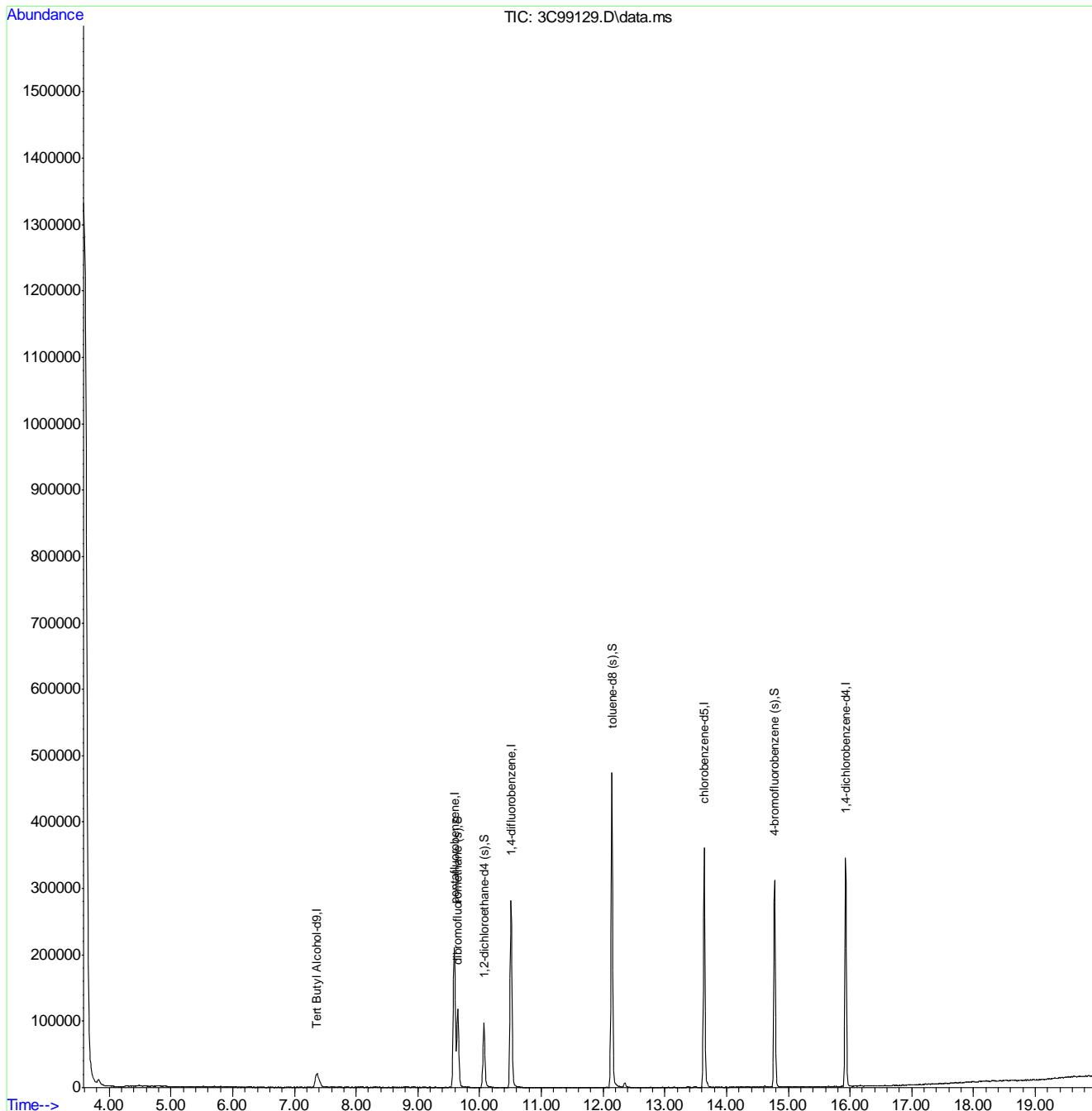
Target Compounds	Qvalue
<hr/>	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4402-03\
 Data File : 3C99129.D
 Acq On : 31 May 2013 3:46 am
 Operator : juntaep
 Sample : jb37699-1
 Misc : MS48843,V3C4403,6.0,,,1
 ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 31 09:18:08 2013
 Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 28 09:01:21 2013
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4404-05\
 Data File : 3C99156.D
 Acq On : 31 May 2013 6:46 pm
 Operator : juntaep
 Sample : jb37699-2
 Misc : MS48843,V3C4404,6.0,,,1
 ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 03 08:22:45 2013
 Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 28 09:01:21 2013
 Response via : Initial Calibration

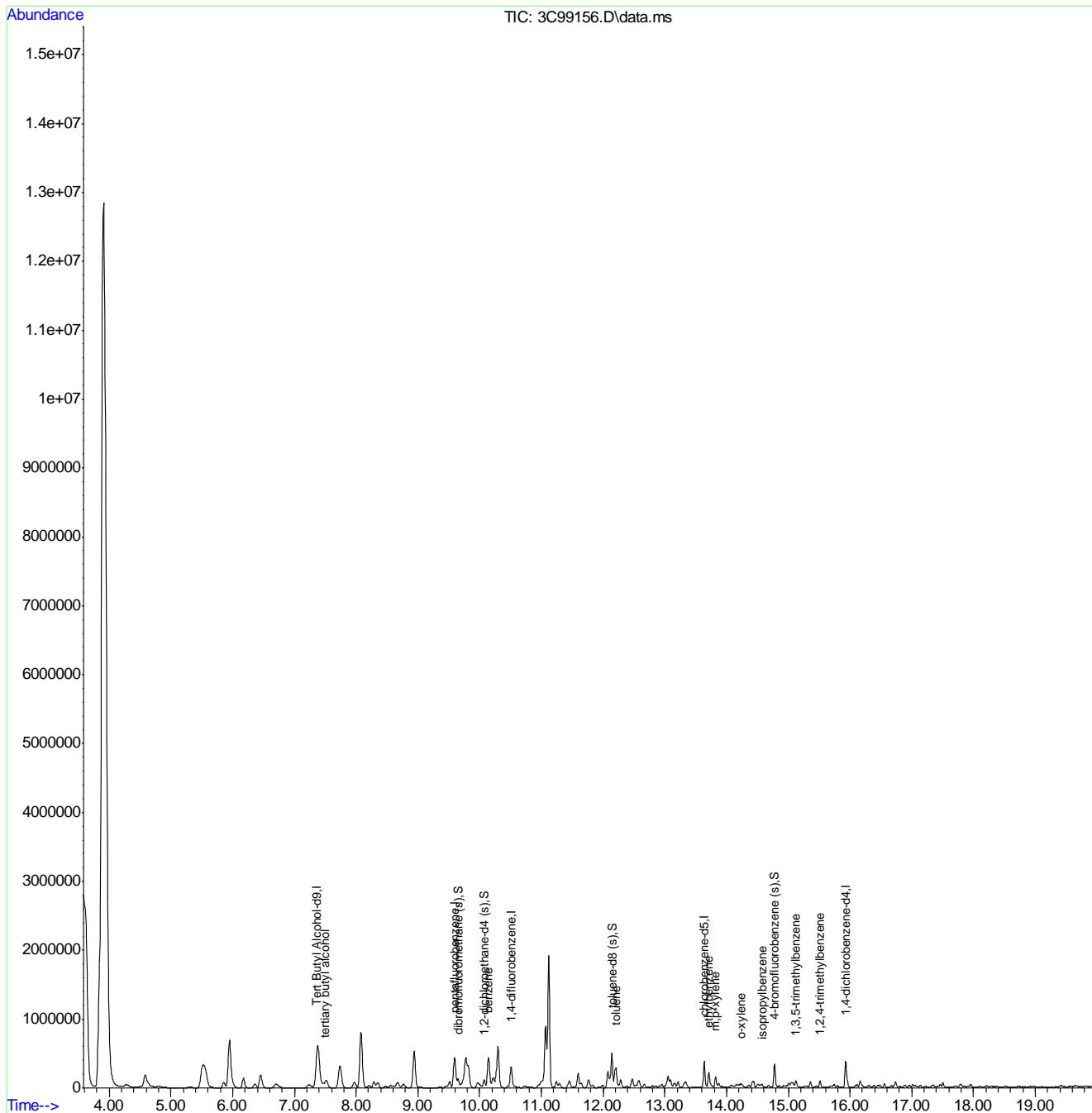
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) Tert Butyl Alcohol-d9	7.367	65	59264	500.00	ug/L	# 0.00
5) pentafluorobenzene	9.595	168	187390	50.00	ug/L	0.00
53) 1,4-difluorobenzene	10.510	114	271969	50.00	ug/L	0.00
82) chlorobenzene-d5	13.638	117	217317	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	15.928	152	99555	50.00	ug/L	0.00
<hr/>						
System Monitoring Compounds						
44) dibromofluoromethane (s)	9.652	113	82767	50.54	ug/L	0.00
Spiked Amount 50.000	Range 65 - 131		Recovery	=	101.08%	
45) 1,2-dichloroethane-d4 (s)	10.071	65	85504	51.80	ug/L	0.00
Spiked Amount 50.000	Range 70 - 121		Recovery	=	103.60%	
74) toluene-d8 (s)	12.142	98	339288	49.95	ug/L	0.00
Spiked Amount 50.000	Range 80 - 128		Recovery	=	99.90%	
99) 4-bromofluorobenzene (s)	14.778	95	113353	50.77	ug/L	0.00
Spiked Amount 50.000	Range 67 - 131		Recovery	=	101.54%	
<hr/>						
Target Compounds						
3) tertiary butyl alcohol	7.492	59	4090	16.84	ug/L	# 1
59) benzene	10.144	78	296555	36.76	ug/L	99
76) toluene	12.215	92	105508	22.48	ug/L	99
91) ethylbenzene	13.716	91	44700	5.00	ug/L	99
92) m,p-xylene	13.821	106	31446	9.21	ug/L	98
93) o-xylene	14.234	106	15547	4.65	ug/L	95
98) isopropylbenzene	14.574	105	11139	1.33	ug/L	97
109) 1,3,5-trimethylbenzene	15.123	105	45156	6.45	ug/L	97
112) 1,2,4-trimethylbenzene	15.515	105	54299	7.83	ug/L	98
<hr/>						

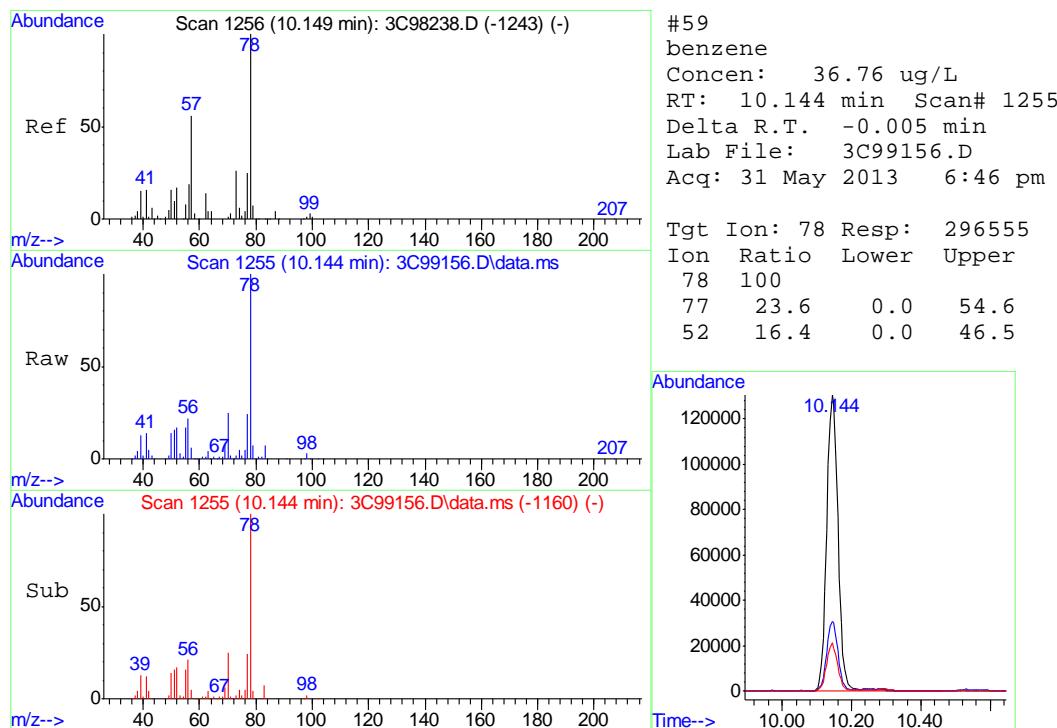
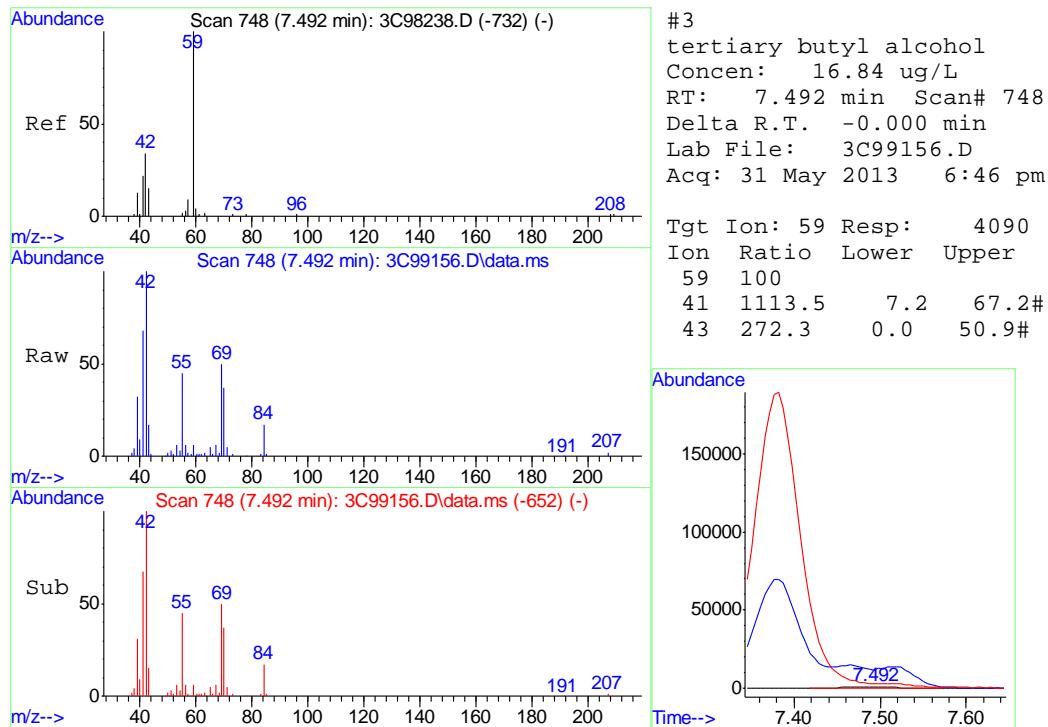
(#) = qualifier out of range (m) = manual integration (+) = signals summed

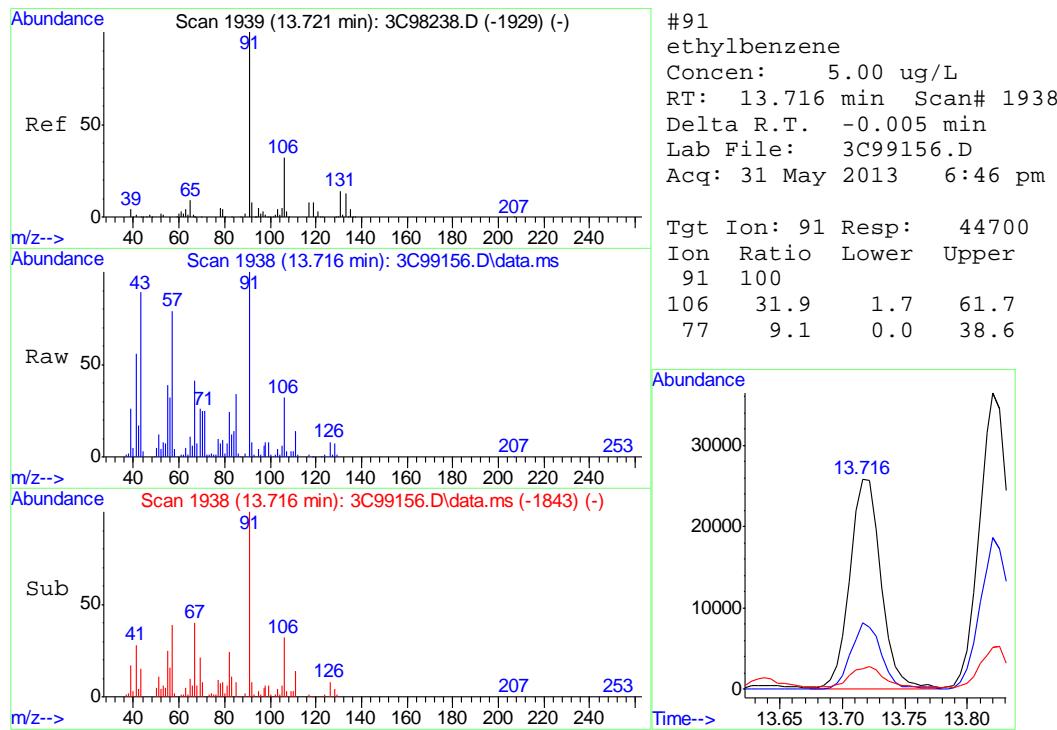
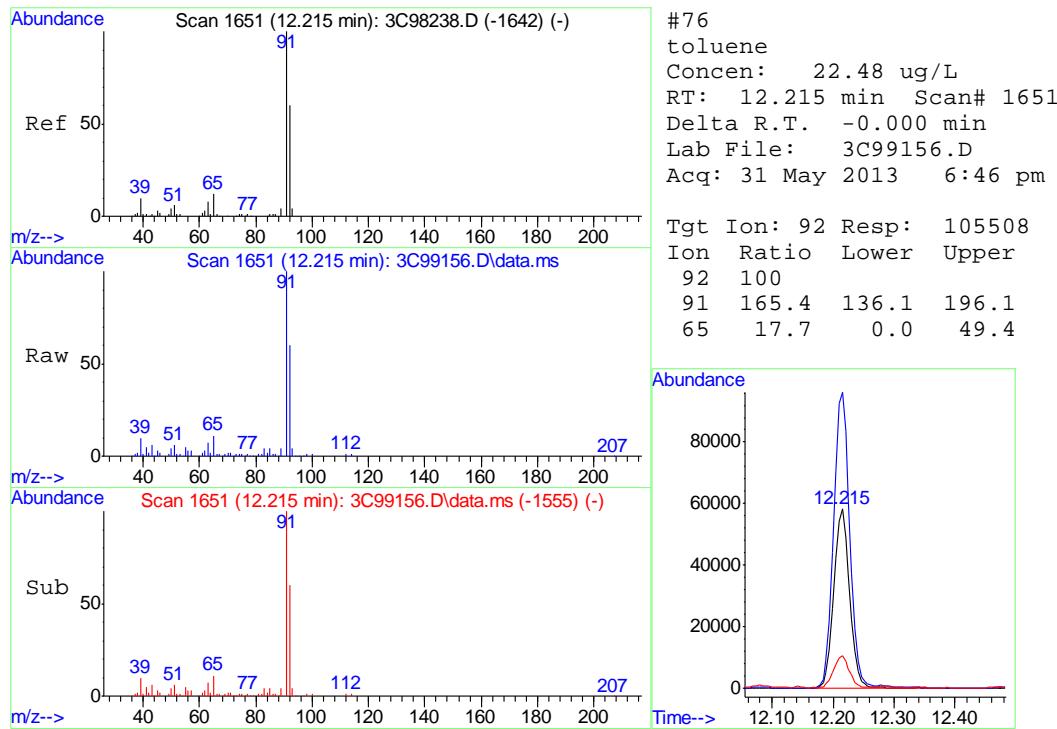
Quantitation Report (QT Reviewed)

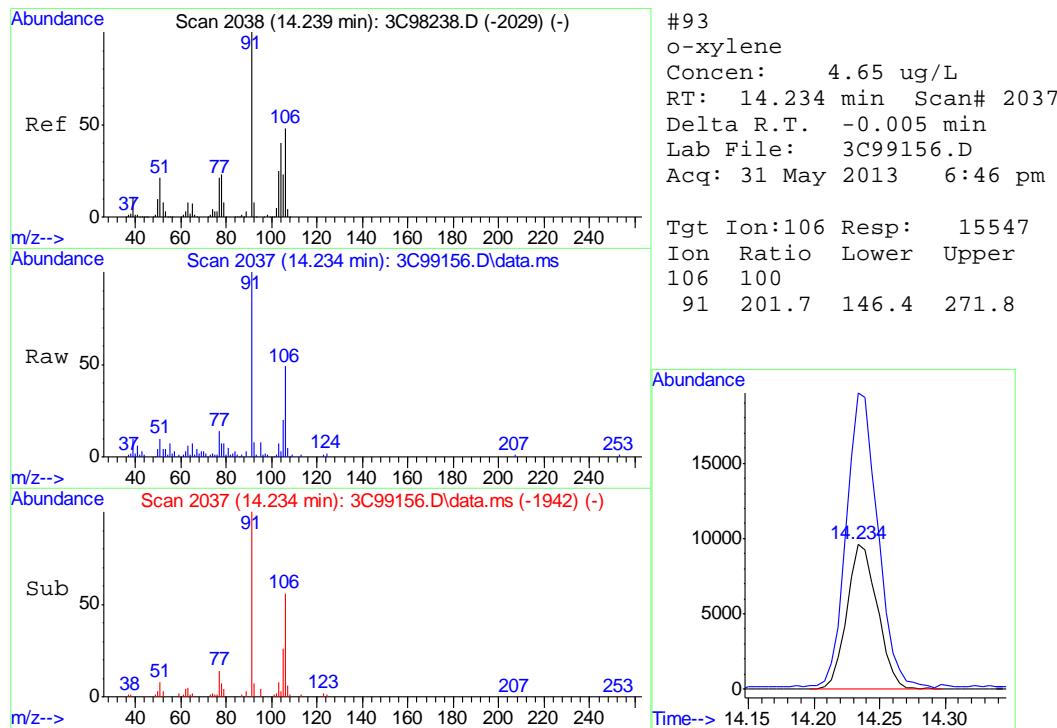
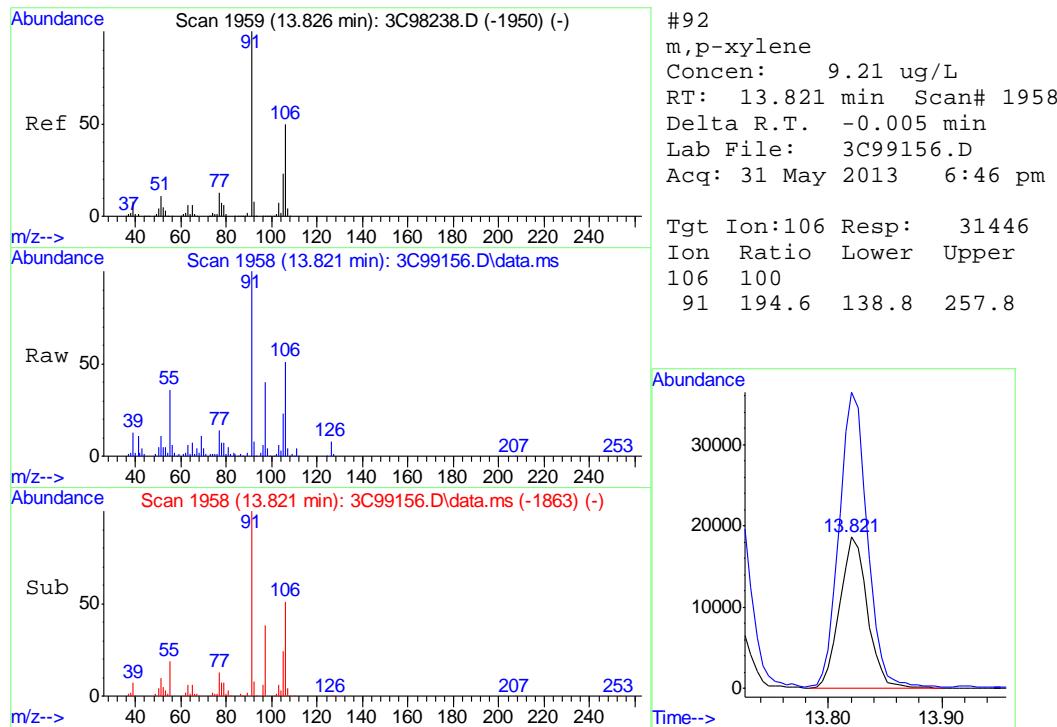
Data Path : C:\msdchem\1\DATA\3C\v3c4404-05\
 Data File : 3C99156.D
 Acq On : 31 May 2013 6:46 pm
 Operator : juntaep
 Sample : jb37699-2
 Misc : MS48843,V3C4404,6.0,,,1
 ALS Vial : 24 Sample Multiplier: 1

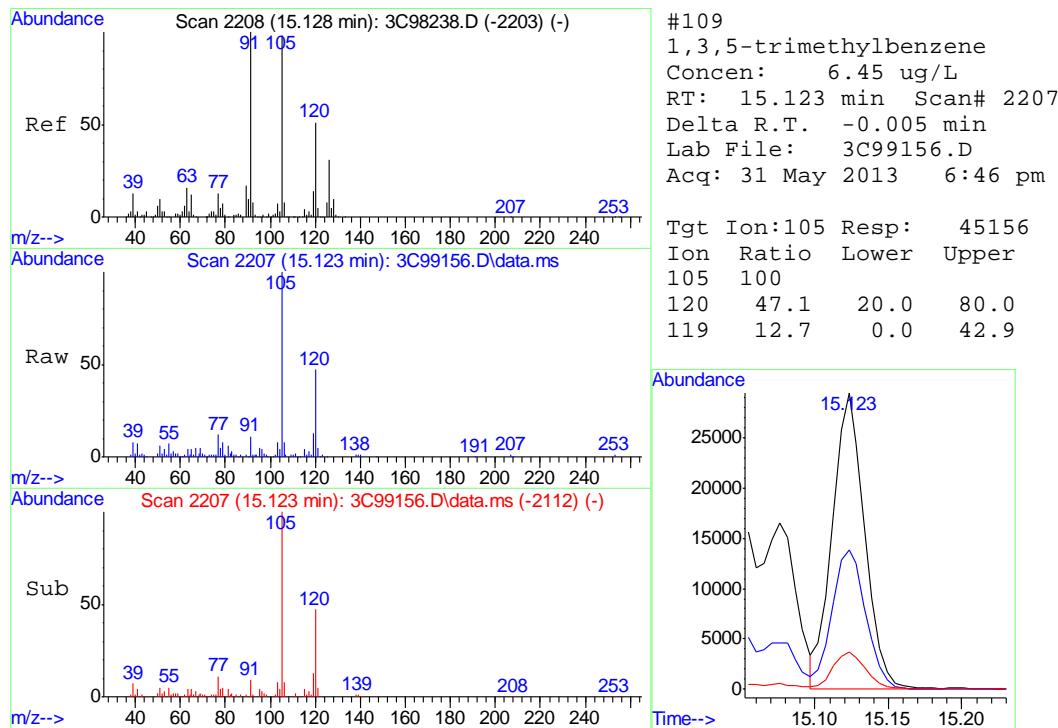
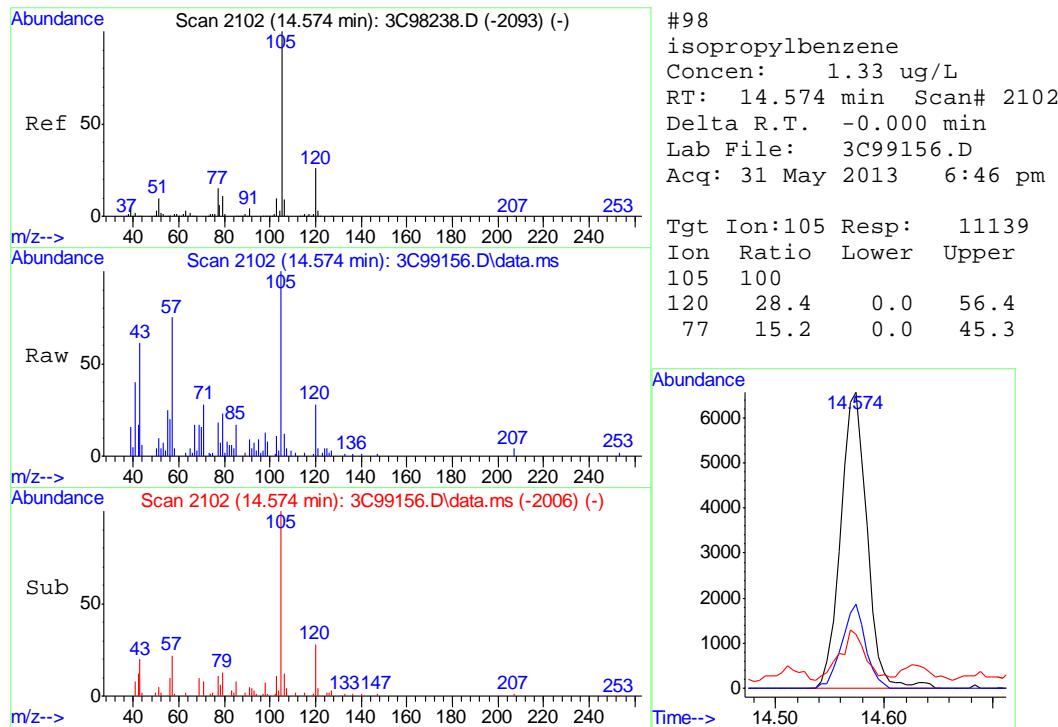
Quant Time: Jun 03 08:22:45 2013
 Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 28 09:01:21 2013
 Response via : Initial Calibration

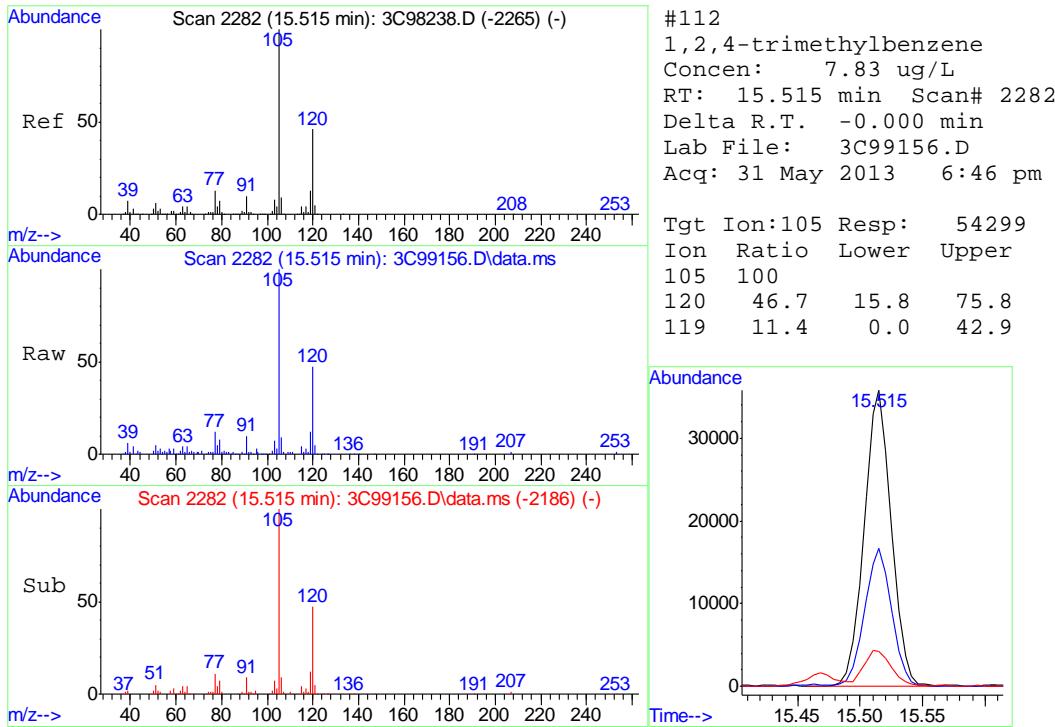












Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4402-03\
 Data File : 3C99117.D
 Acq On : 30 May 2013 9:53 pm
 Operator : juntaep
 Sample : mb
 Misc : MS48750,V3C4403,5.0,,,1
 ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 31 09:12:09 2013
 Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 28 09:01:21 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) Tert Butyl Alcohol-d9	7.372	65	58114	500.00	ug/L	0.00
5) pentafluorobenzene	9.594	168	192371	50.00	ug/L	0.00
53) 1,4-difluorobenzene	10.510	114	275674	50.00	ug/L	0.00
82) chlorobenzene-d5	13.637	117	217321	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	15.928	152	93981	50.00	ug/L	0.00

System Monitoring Compounds

44) dibromofluoromethane (s)	9.647	113	84019	49.98	ug/L	-0.01
Spiked Amount	50.000	Range	65 - 131	Recovery	=	99.96%
45) 1,2-dichloroethane-d4 (s)	10.070	65	79161	46.71	ug/L	0.00
Spiked Amount	50.000	Range	70 - 121	Recovery	=	93.42%
74) toluene-d8 (s)	12.142	98	350956	50.97	ug/L	0.00
Spiked Amount	50.000	Range	80 - 128	Recovery	=	101.94%
99) 4-bromofluorobenzene (s)	14.778	95	111216	52.77	ug/L	0.00
Spiked Amount	50.000	Range	67 - 131	Recovery	=	105.54%

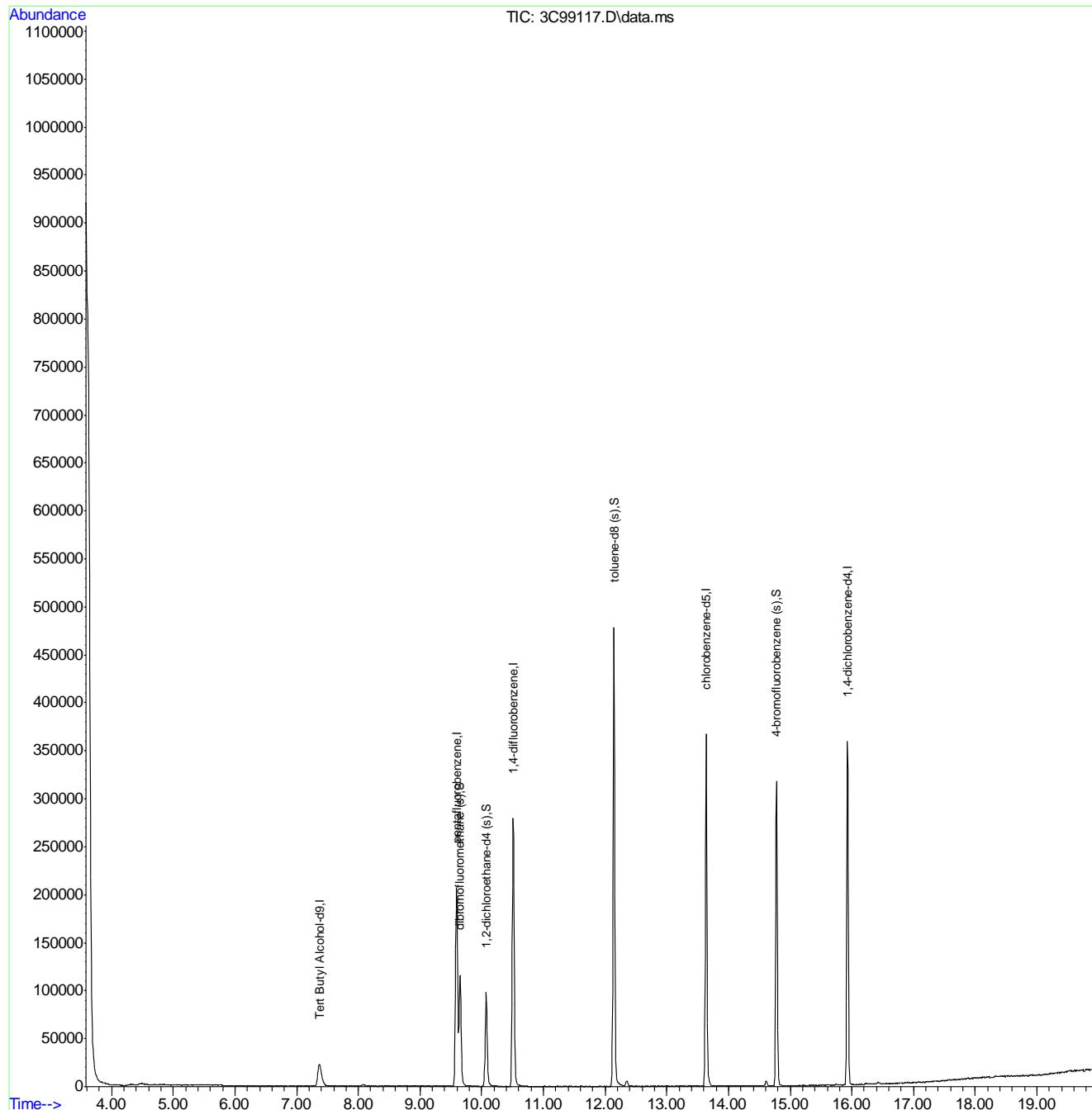
Target Compounds	Qvalue
<hr/>	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4402-03\
 Data File : 3C99117.D
 Acq On : 30 May 2013 9:53 pm
 Operator : juntaep
 Sample : mb
 Misc : MS48750,V3C4403,5.0,,,1
 ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 31 09:12:09 2013
 Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 28 09:01:21 2013
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4404\
 Data File : 3C99136.D
 Acq On : 31 May 2013 8:25 am
 Operator : juntaep
 Sample : mb
 Misc : MS48749,V3C4404,5.0,,,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 31 14:23:59 2013
 Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 28 09:01:21 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) Tert Butyl Alcohol-d9	7.372	65	44053	500.00	ug/L	0.00
5) pentafluorobenzene	9.595	168	179870	50.00	ug/L	0.00
53) 1,4-difluorobenzene	10.510	114	257228	50.00	ug/L	0.00
82) chlorobenzene-d5	13.638	117	200803	50.00	ug/L	0.00
97) 1,4-dichlorobenzene-d4	15.928	152	87868	50.00	ug/L	0.00

System Monitoring Compounds

44) dibromofluoromethane (s)	9.647	113	76727	48.81	ug/L	-0.01
Spiked Amount	50.000	Range	65 - 131	Recovery	=	97.62%
45) 1,2-dichloroethane-d4 (s)	10.071	65	70333	44.39	ug/L	0.00
Spiked Amount	50.000	Range	70 - 121	Recovery	=	88.78%
74) toluene-d8 (s)	12.142	98	327315	50.95	ug/L	0.00
Spiked Amount	50.000	Range	80 - 128	Recovery	=	101.90%
99) 4-bromofluorobenzene (s)	14.778	95	102306	51.91	ug/L	0.00
Spiked Amount	50.000	Range	67 - 131	Recovery	=	103.82%

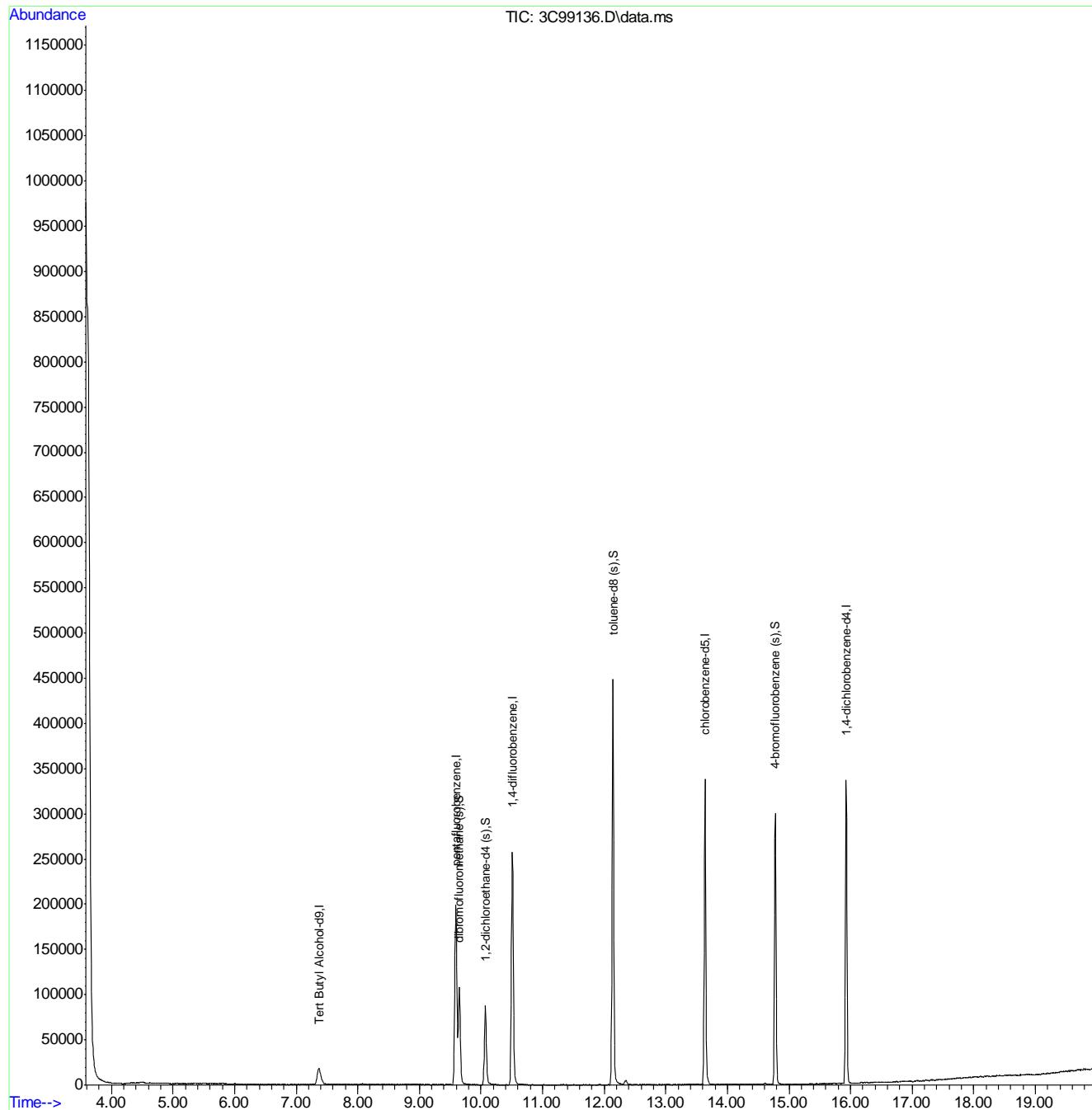
Target Compounds	Qvalue
<hr/>	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\3C\v3c4404\
 Data File : 3C99136.D
 Acq On : 31 May 2013 8:25 am
 Operator : juntaep
 Sample : mb
 Misc : MS48749,V3C4404,5.0,,,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 31 14:23:59 2013
 Quant Method : C:\MSDCHEM\1\METHODS\M3C4359.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 28 09:01:21 2013
 Response via : Initial Calibration





Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

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Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody



CHAIN OF CUSTODY

PAGE ____ OF ____

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

Client / Reporting Information		Project Information													
Company Name: Accutest Laboratories		Project Name: Marcus Hook Refinery													
Street Address: 2235 Route 130		Street		Billing Information (If different from Report to)											
				Company Name											
City Dayton State NJ Zip 08810															
Project Contact Kristin Beebe		E-mail		Project #		Street Address									
Phone # 732-355-4559		Fax #		Client Purchase Order #		City		State		Zip					
Sampler(s) Name(s)		Phone		Project Manager		Attention:									
Accutest Sample #		Field ID / Point of Collection		MEOH/DI Vial #		Collection		Number of preserved Bottles							
						Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	HSC4	None
1					5/22/2013	10:30	Soil	2		X					X X X X X
2					5/22/2013	9:15	Soil	2		X					X X X X X
														<i>1D SF2</i>	
Turnaround Time (Business days)		Data Deliverable Information										Comments / Special Instructions			
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <input type="checkbox"/> other _____ <small>Emergency & Rush - 1/4 data available VIA Lablink</small>		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input checked="" type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <small>Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data</small>										<small>NYASP Category A NYASP Category B State Forms EDD Format Other</small> <small>Please send 300ml jar and 60ml jar to ALNE only. Methanol kits to remain here for analysis.</small>			
Sample Custody must be documented below each time samples change possession, including courier delivery.															
1	Relinquished by Sampler:	Date Time: 5-23-13 7:00	Received By: 1	Relinquished By: FEDEX	Date Time: 5-24-13 9:15	Received By: 2									
3	Relinquished by Sampler:	Date Time:	Received By: 3	Relinquished By:	Date Time:	Received By:									
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #: 682	<input type="checkbox"/> In tact <input type="checkbox"/> Not intact	Preserved where applicable	<input type="checkbox"/>	On Ice	Cooler Temp. 31.3°C						

FED-EX Tracking #		Bottle Order Control #			
Accutest Quote #		Accutest Job # JB37699			
Requested Analysis (see TEST CODE sheet)				Matrix Codes	
				DW - Drinking Water	
				GW - Ground Water	
				WW - Water	
				SW - Surface Water	
				SL - Sludge	
				SED - Sediment	
				Oil - Oil	
				LIQ - Other Liquid	
				AIR - Air	
				SOL - Other Solid	
				WP - Wipe	
				FB - Field Blank	
				EB - Equipment Blank	
				RB - Rinse Blank	
				TB - Trip Blank	
					LAB USE ONLY

JB37699: Chain of Custody

Page 1 of 2

Accutest Labs of New England, Inc.



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB37699

Client: ALNE

Immediate Client Services Action Required: No

Date / Time Received: 5/24/2013

Delivery Method:

Client Service Action Required at Login: No

Project: MARCUS

No. Coolers: 1

Airbill #'s:

Cooler Security**Y or N****Y or N**

1. Custody Seals Present: 3. COC Present:
2. Custody Seals Intact: 4. Smpl Dates/Time OK

Cooler Temperature**Y or N**

1. Temp criteria achieved:
2. Cooler temp verification: Infared gun
3. Cooler media: Ice (bag)

Quality Control Preservation**Y or N****N/A**

1. Trip Blank present / cooler:
2. Trip Blank listed on COC:
3. Samples preserved properly:
4. VOCs headspace free:

Sample Integrity - Documentation**Y or N**

1. Sample labels present on bottles:
2. Container labeling complete:
3. Sample container label / COC agree:

Sample Integrity - Condition**Y or N**

1. Sample rcvd within HT:
2. All containers accounted for:
3. Condition of sample: Intact

Sample Integrity - Instructions**Y or N****N/A**

1. Analysis requested is clear:
2. Bottles received for unspecified tests:
3. Sufficient volume rcvd for analysis:
4. Compositing instructions clear:
5. Filtering instructions clear:

Comments

Accutest Laboratories
V:508.481.6200495 Technology Center West, Bldg One
F: 508.481.7753Marlborough, MA
www.accutest.com

8.1

8

JB37699: Chain of Custody**Page 2 of 2**

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB37699

AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA
Project No: AOI-5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB37699-1	Collected: 22-MAY-13 10:30 By: LM	Received: 22-MAY-13 By: BA				
AOI-5_MW-458_0-2'_52213						
JB37699-1	SW846 8011	30-MAY-13 18:17	CZ	28-MAY-13 BJ	V8011EDB	
JB37699-1	SM21 2540 B MOD.	31-MAY-13	HS		%SOL	
JB37699-1	SW846 6010C	31-MAY-13 21:19	EAL	31-MAY-13 DA	PB	
JB37699-1	SW846 8270C	05-JUN-13 13:50	KR	03-JUN-13 PA	B8270SL	
JB37699-2	Collected: 22-MAY-13 09:15 By: LM	Received: 22-MAY-13 By: BA				
AOI-5_MW-456_5-6'_52213						
JB37699-2	SW846 8011	30-MAY-13 19:05	CZ	28-MAY-13 BJ	V8011EDB	
JB37699-2	SM21 2540 B MOD.	31-MAY-13	HS		%SOL	
JB37699-2	SW846 6010C	31-MAY-13 21:24	EAL	31-MAY-13 DA	PB	
JB37699-2	SW846 8270C	05-JUN-13 14:14	KR	03-JUN-13 PA	B8270SL	

Accutest Internal Chain of Custody

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Received: 05/22/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB37699-1.1	Walk In Ref #5	Dorina Antonovici	05/31/13 10:37	Retrieve from Storage
JB37699-1.1	Dorina Antonovici	Walk In Ref #5	05/31/13 13:18	Return to Storage
JB37699-1.1	Walk In Ref #5	Thomas Abruzzise	06/03/13 14:02	Retrieve from Storage
JB37699-1.1	Thomas Abruzzise	Walk In Ref #5	06/03/13 21:39	Return to Storage
JB37699-2.1	Walk In Ref #5	Dorina Antonovici	05/31/13 10:37	Retrieve from Storage
JB37699-2.1	Dorina Antonovici	Walk In Ref #5	05/31/13 13:18	Return to Storage
JB37699-2.1	Walk In Ref #5	Thomas Abruzzise	06/03/13 14:02	Retrieve from Storage
JB37699-2.1	Thomas Abruzzise	Walk In Ref #5	06/03/13 21:39	Return to Storage
JB37699-2.1	Walk In Ref #5	Thomas Abruzzise	06/04/13 13:35	Retrieve from Storage
JB37699-2.1	Thomas Abruzzise	Walk In Ref #5	06/04/13 20:24	Return to Storage



GC/MS Semi-volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

6

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33459-MB	W12837.D	1	06/05/13	KR	06/03/13	OP33459	MSW591

The QC reported here applies to the following samples:

Method: SW846 8270C

JB37699-1, JB37699-2

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	98	33	ug/kg	
56-55-3	Benzo(a)anthracene	ND	98	37	ug/kg	
50-32-8	Benzo(a)pyrene	ND	98	23	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	98	23	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	98	44	ug/kg	
218-01-9	Chrysene	ND	98	39	ug/kg	
86-73-7	Fluorene	ND	98	34	ug/kg	
91-20-3	Naphthalene	ND	98	38	ug/kg	
85-01-8	Phenanthrene	ND	98	29	ug/kg	
129-00-0	Pyrene	ND	98	30	ug/kg	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	46% 30-130%
4165-62-2	Phenol-d5	46% 30-130%
118-79-6	2,4,6-Tribromophenol	58% 30-130%
4165-60-0	Nitrobenzene-d5	46% 30-130%
321-60-8	2-Fluorobiphenyl	51% 30-130%
1718-51-0	Terphenyl-d14	71% 30-130%

Blank Spike Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33459-BS	W12838.D	1	06/05/13	KR	06/03/13	OP33459	MSW591

The QC reported here applies to the following samples:

Method: SW846 8270C

JB37699-1, JB37699-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	2420	1570	65	40-140
56-55-3	Benzo(a)anthracene	2420	1910	79	40-140
50-32-8	Benzo(a)pyrene	2420	1660	69	40-140
205-99-2	Benzo(b)fluoranthene	2420	1830	76	40-140
191-24-2	Benzo(g,h,i)perylene	2420	1900	79	40-140
218-01-9	Chrysene	2420	1820	75	40-140
86-73-7	Fluorene	2420	1570	65	40-140
91-20-3	Naphthalene	2420	1060	44	40-140
85-01-8	Phenanthrene	2420	1690	70	40-140
129-00-0	Pyrene	2420	1760	73	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	34%	30-130%
4165-62-2	Phenol-d5	42%	30-130%
118-79-6	2,4,6-Tribromophenol	67%	30-130%
4165-60-0	Nitrobenzene-d5	40%	30-130%
321-60-8	2-Fluorobiphenyl	54%	30-130%
1718-51-0	Terphenyl-d14	71%	30-130%

* = Outside of Control Limits.

9.2.1

9

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33459-MS	W12839.D	1	06/05/13	KR	06/03/13	OP33459	MSW591
OP33459-MSD	W12840.D	1	06/05/13	KR	06/03/13	OP33459	MSW591
MC21154-8	W12841.D	1	06/05/13	KR	06/03/13	OP33459	MSW591

The QC reported here applies to the following samples:

Method: SW846 8270C

JB37699-1, JB37699-2

CAS No.	Compound	MC21154-8		Spike	MS	MS	MSD	MSD	Limits	
		ug/kg	Q	ug/kg	ug/kg	%	ug/kg	%	RPD	Rec/RPD
120-12-7	Anthracene	ND		2830	2110	74	1930	68	9	40-140/30
56-55-3	Benzo(a)anthracene	ND		2830	2490	88	2250	79	10	40-140/30
50-32-8	Benzo(a)pyrene	ND		2830	2110	74	1920	68	9	40-140/30
205-99-2	Benzo(b)fluoranthene	ND		2830	2520	89	2150	76	16	40-140/30
191-24-2	Benzo(g,h,i)perylene	ND		2830	2410	85	2180	77	10	40-140/30
218-01-9	Chrysene	ND		2830	2370	84	2160	76	9	40-140/30
86-73-7	Fluorene	ND		2830	2090	74	1950	69	7	40-140/30
91-20-3	Naphthalene	ND		2830	1430	50	1200	42	17	40-140/30
85-01-8	Phenanthrene	ND		2830	2240	79	2070	73	8	40-140/30
129-00-0	Pyrene	ND		2830	2360	83	2110	75	11	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC21154-8	Limits
367-12-4	2-Fluorophenol	41%	31%	43%	30-130%
4165-62-2	Phenol-d5	48%	40%	43%	30-130%
118-79-6	2,4,6-Tribromophenol	75%	68%	67%	30-130%
4165-60-0	Nitrobenzene-d5	44%	37%	40%	30-130%
321-60-8	2-Fluorobiphenyl	59%	53%	49%	30-130%
1718-51-0	Terphenyl-d14	78%	70%	71%	30-130%

* = Outside of Control Limits.

9.3.1
9

Instrument Performance Check (DFTPP)

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSW580-DFTPP	Injection Date:	05/30/13
Lab File ID:	W12578.D	Injection Time:	07:20
Instrument ID:	GCMSW		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	17592	44.7	Pass
68	Less than 2.0% of mass 69	327	0.83	(1.75) ^a Pass
69	Mass 69 relative abundance	18712	47.6	Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) ^a Pass
127	40.0 - 60.0% of mass 198	21376	54.4	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	39328	100.0	Pass
199	5.0 - 9.0% of mass 198	2823	7.18	Pass
275	10.0 - 30.0% of mass 198	10085	25.6	Pass
365	1.0 - 100.0% of mass 198	1062	2.70	Pass
441	Present, but less than mass 443	2939	7.47	(71.7) ^b Pass
442	40.0 - 100.0% of mass 198	19792	50.3	Pass
443	17.0 - 23.0% of mass 442	4099	10.4	(20.7) ^c Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSW579-IC579	W12580.D	05/30/13	09:02	01:42	Initial cal 2
MSW579-IC579	W12581.D	05/30/13	09:25	02:05	Initial cal 5
MSW579-IC579	W12582.D	05/30/13	10:16	02:56	Initial cal 10
MSW579-IC579	W12583.D	05/30/13	10:40	03:20	Initial cal 20
MSW579-ICC579	W12584.D	05/30/13	11:03	03:43	Initial cal 50
MSW579-IC579	W12585.D	05/30/13	11:26	04:06	Initial cal 80
MSW579-IC579	W12586.D	05/30/13	11:49	04:29	Initial cal 120
MSW579-IC579	W12587.D	05/30/13	12:12	04:52	Initial cal 160
MSW579-ICV579	W12588.D	05/30/13	12:36	05:16	Initial cal verification 50
MSW579-ICV579	W12589.D	05/30/13	12:59	05:39	Initial cal verification 20
MSW579-ICV579	W12590.D	05/30/13	13:22	06:02	Initial cal verification 20
MSW580-ICC580	W12593.D	05/30/13	15:22	08:02	Initial cal 50
MSW580-IC580	W12594.D	05/30/13	15:45	08:25	Initial cal 5
MSW580-IC580	W12595.D	05/30/13	16:08	08:48	Initial cal 10
MSW580-IC580	W12596.D	05/30/13	16:31	09:11	Initial cal 20
MSW580-IC580	W12597.D	05/30/13	16:54	09:34	Initial cal 40
MSW580-IC580	W12598.D	05/30/13	17:18	09:58	Initial cal 80
MSW580-IC580	W12599.D	05/30/13	17:41	10:21	Initial cal 100

Instrument Performance Check (DFTPP)

Page 1 of 2

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSW592-DFTPP	Injection Date:	06/05/13
Lab File ID:	W12830.D	Injection Time:	07:55
Instrument ID:	GCMSW		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	8221	31.4	Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) ^a Pass
69	Mass 69 relative abundance	8348	31.8	Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) ^a Pass
127	40.0 - 60.0% of mass 198	11543	44.0	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	26216	100.0	Pass
199	5.0 - 9.0% of mass 198	1874	7.15	Pass
275	10.0 - 30.0% of mass 198	7735	29.5	Pass
365	1.0 - 100.0% of mass 198	719	2.74	Pass
441	Present, but less than mass 443	3144	12.0	(67.0) ^b Pass
442	40.0 - 100.0% of mass 198	21368	81.5	Pass
443	17.0 - 23.0% of mass 442	4694	17.9	(22.0) ^c Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSW592-CC580	W12831.D	06/05/13	08:19	00:24	Continuing cal 50
MSW591-CC579	W12833.D	06/05/13	09:06	01:11	Continuing cal 80
OP33459-MB	W12837.D	06/05/13	10:41	02:46	Method Blank
OP33459-BS	W12838.D	06/05/13	11:05	03:10	Blank Spike
OP33459-MS	W12839.D	06/05/13	11:29	03:34	Matrix Spike
OP33459-MSD	W12840.D	06/05/13	11:52	03:57	Matrix Spike Duplicate
MC21154-8	W12841.D	06/05/13	12:16	04:21	(used for QC only; not part of job JB37699)
ZZZZZZ	W12842.D	06/05/13	12:39	04:44	(unrelated sample)
ZZZZZZ	W12843.D	06/05/13	13:03	05:08	(unrelated sample)
ZZZZZZ	W12844.D	06/05/13	13:27	05:32	(unrelated sample)
JB37699-1	W12845.D	06/05/13	13:50	05:55	AOI-5_MW-458_0-2'_52213
JB37699-2	W12846.D	06/05/13	14:14	06:19	AOI-5_MW-456_5-6'_52213
ZZZZZZ	W12847.D	06/05/13	14:37	06:42	(unrelated sample)
ZZZZZZ	W12848.D	06/05/13	15:00	07:05	(unrelated sample)
ZZZZZZ	W12849.D	06/05/13	15:24	07:29	(unrelated sample)
ZZZZZZ	W12850.D	06/05/13	15:48	07:53	(unrelated sample)
ZZZZZZ	W12851.D	06/05/13	16:11	08:16	(unrelated sample)
ZZZZZZ	W12852.D	06/05/13	16:34	08:39	(unrelated sample)
ZZZZZZ	W12853.D	06/05/13	16:58	09:03	(unrelated sample)

Instrument Performance Check (DFTPP)

Page 2 of 2

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSW592-DFTPP	Injection Date:	06/05/13
Lab File ID:	W12830.D	Injection Time:	07:55
Instrument ID:	GCMSW		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	W12854.D	06/05/13	17:21	09:26	(unrelated sample)
ZZZZZZ	W12855.D	06/05/13	17:44	09:49	(unrelated sample)
ZZZZZZ	W12857.D	06/05/13	18:31	10:36	(unrelated sample)

9.4.2
9

Semivolatile Internal Standard Area Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	MSW592-CC580				Injection Date:		06/05/13			
Lab File ID:	W12831.D				Injection Time:		08:19			
Instrument ID:	GCMSW				Method:		SW846 8270C			

	IS 1 AREA	IS 1 RT	IS 2 AREA	IS 2 RT	IS 3 AREA	IS 3 RT	IS 4 AREA	IS 4 RT	IS 5 AREA	IS 5 RT	IS 6 AREA	IS 6 RT
Check Std	51288	4.22	181697	5.28	125339	6.82	236082	8.23	304132	11.21	304666	12.80
Upper Limit ^a	102576	4.72	363394	5.78	250678	7.32	472164	8.73	608264	11.71	609332	13.30
Lower Limit ^b	25644	3.72	90849	4.78	62670	6.32	118041	7.73	152066	10.71	152333	12.30

Lab Sample ID	IS 1 AREA	IS 1 RT	IS 2 AREA	IS 2 RT	IS 3 AREA	IS 3 RT	IS 4 AREA	IS 4 RT	IS 5 AREA	IS 5 RT	IS 6 AREA	IS 6 RT
OP33459-MB	50077	4.22	181941	5.28	124555	6.82	236695	8.22	306272	11.20	310143	12.79
OP33459-BS	53771	4.22	190499	5.28	130151	6.82	251769	8.23	320397	11.21	325037	12.79
OP33459-MS	62519	4.22	226912	5.28	155614	6.82	296034	8.23	371761	11.21	379225	12.80
OP33459-MSD	51172	4.22	187145	5.28	126628	6.82	243601	8.23	310189	11.20	314955	12.79
MC21154-8	52966	4.22	192853	5.28	131183	6.82	250333	8.22	318069	11.20	318592	12.79
ZZZZZZ	56395	4.22	204497	5.28	137288	6.82	259882	8.22	327109	11.20	328752	12.79
ZZZZZZ	52657	4.22	191819	5.28	130458	6.82	248275	8.22	310984	11.20	316592	12.79
ZZZZZZ	54807	4.22	201199	5.28	138455	6.82	264390	8.23	339312	11.20	344907	12.79
JB37699-1	44520	4.22	164292	5.28	112253	6.82	212061	8.22	269919	11.20	275300	12.80
JB37699-2	49619	4.22	180760	5.28	124880	6.82	234751	8.22	302830	11.20	306321	12.79
ZZZZZZ	62174	4.22	217457	5.28	149141	6.82	284193	8.23	360203	11.21	369028	12.81
ZZZZZZ	46680	4.22	174334	5.28	120149	6.82	227349	8.23	287963	11.21	295114	12.80
ZZZZZZ	48865	4.22	181626	5.28	125330	6.82	237323	8.23	296499	11.21	304060	12.80
ZZZZZZ	40179	4.22	148001	5.28	101634	6.82	193306	8.23	245862	11.20	251822	12.80
ZZZZZZ	48869	4.22	181038	5.28	123590	6.82	233823	8.23	295691	11.21	300275	12.80
ZZZZZZ	47369	4.22	175256	5.28	117883	6.82	219599	8.22	275407	11.20	277817	12.79
ZZZZZZ	48632	4.22	179217	5.28	121943	6.82	227810	8.23	278938	11.20	283093	12.79
ZZZZZZ	49988	4.22	183479	5.28	126264	6.82	239182	8.23	301148	11.20	307850	12.80
ZZZZZZ	41556	4.22	151891	5.28	102966	6.82	194613	8.22	242060	11.20	248464	12.79
ZZZZZZ	48183	4.22	176080	5.28	120937	6.82	229455	8.23	288305	11.20	292853	12.80

IS 1 = 1,4-Dichlorobenzene-d4

IS 2 = Naphthalene-d8

IS 3 = Acenaphthene-D10

IS 4 = Phenanthrene-d10

IS 5 = Chrysene-d12

IS 6 = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Surrogate Recovery Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Method: SW846 8270C

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JB37699-1	W12845.D	46.0	55.0	65.0
JB37699-2	W12846.D	49.0	60.0	76.0
OP33459-BS	W12838.D	40.0	54.0	71.0
OP33459-MB	W12837.D	46.0	51.0	71.0
OP33459-MS	W12839.D	44.0	59.0	78.0
OP33459-MSD	W12840.D	37.0	53.0	70.0

Surrogate
Compounds

Recovery
Limits

S1 = Nitrobenzene-d5
S2 = 2-Fluorobiphenyl
S3 = Terphenyl-d14

30-130%

30-130%

30-130%

9.6.1

6

Initial Calibration Summary

Job Number: JB37699

Sample: MSW579-ICC579

Account: ALNJ Accutest New Jersey

Lab FileID: W12584.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Response Factor Report MSW

Method : C:\msdchem\1\met...\\W130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 18:03:11 2013
 Response via : Initial Calibration

Calibration Files

160 =w12587.D	120 =w12586.D	80 =w12585.D	20 =w12583.D
5 =w12581.D	2 =w12580.D	10 =w12582.D	50 =w12584.D

Compound	160	120	80	20	5	2	10	50	Avg	%RSD
----------	-----	-----	----	----	---	---	----	----	-----	------

1) I 1,4-Dichlorobenzene-d	-----	ISTD-----								
2) N-nitrosodim	0.622	0.609	0.636	0.633	0.609		0.653	0.637	0.628	2.59
3) Pyridine	1.104	1.099	1.162	1.188	1.297		1.209	1.191	1.179	5.74
4) Aniline		0.504	0.541	0.589	0.572	0.544	0.588	0.574	0.559	5.52
5) 2-Fluorophen	1.096	1.081	1.070	1.092	1.036	1.084	1.121	1.086	1.083	2.23
6) bis(2-Chloro	0.652	0.651	0.671	0.682	0.686	0.660	0.714	0.684	0.675	3.12
7) Phenol-d5	1.355	1.336	1.312	1.354	1.233	1.250	1.371	1.349	1.320	3.90
8) Phenol	1.516	1.391	1.437	1.423	1.334	1.302	1.421	1.440	1.408	4.71
9) 2-Chlorophen	1.292	1.264	1.297	1.297	1.249	1.295	1.313	1.304	1.289	1.67
10) 1,3-Dichloro	1.452	1.434	1.467	1.488	1.495	1.488	1.547	1.501	1.484	2.31
11) 1,4-Dichloro	1.527	1.517	1.561	1.564	1.573	1.587	1.659	1.559	1.568	2.77
12) 1,2-Dichloro	1.404	1.393	1.438	1.451	1.434	1.407	1.488	1.437	1.431	2.13
13) Benzyl alcoh	0.814	0.801	0.813	0.788	0.739		0.803	0.824	0.798	3.51
14) bis(2-chloro	0.857	0.850	0.878	0.908	0.902	0.845	0.959	0.899	0.887	4.28
15) o-cresol	1.086	1.062	1.106	1.118	1.059	1.041	1.133	1.125	1.091	3.14
16) Acetophenone	1.670	1.679	1.665	1.765	1.688	1.694	1.824	1.759	1.718	3.35
17) Hexachloroet	0.486	0.476	0.493	0.494	0.493	0.478	0.516	0.504	0.493	2.62
18) N-Nitroso-di	0.735	0.719	0.743	0.723	0.621		0.751	0.757	0.721	6.43
19) m+p-cresols	1.191	1.172	1.178	1.211	1.132	1.107	1.225	1.214	1.179	3.50
20) 4-methylphen	1.191	1.172	1.178	1.211	1.132	1.107	1.225	1.214	1.179	3.50
21) I 1,4-Dichlorobenzene-d	-----	ISTD-----								
22) Benzaldehyde								0.000#	-1.00	

23) I Naphthalene-d8	-----	ISTD-----								
24) Nitrobenzene	0.309	0.301	0.298	0.307	0.269	0.256	0.315	0.309	0.295	7.23
25) Nitrobenzene	0.304	0.298	0.309	0.316	0.292	0.271	0.326	0.319	0.304	5.68
26) Isophorone	0.550	0.538	0.559	0.575	0.565	0.562	0.591	0.580	0.565	3.02
27) 2-Nitropheno	0.205	0.198	0.204	0.198	0.170		0.197	0.204	0.196	6.26
28) 2,4-Dimethyl	0.329	0.317	0.330	0.341	0.330		0.339	0.341	0.332	2.62
29) bis(2-Chloro	0.348	0.342	0.350	0.358	0.364		0.373	0.359	0.356	2.93
30) Benzoic acid	0.276	0.259	0.266	0.213			0.174	0.259	0.241	16.39

---- Linear regression --- Coefficient = 0.9990

Response Ratio = -0.02657 + 0.27590 *A

31) 2,4-Dichloro	0.346	0.340	0.347	0.348	0.338		0.344	0.356	0.345	1.77
32) 1,2,4-Trichl	0.373	0.365	0.379	0.383	0.388	0.391	0.399	0.388	0.383	2.75
33) Naphthalene	0.983	0.981	1.015	1.042	1.049	1.059	1.093	1.041	1.033	3.69
34) 2,6-Dichloro	0.336	0.330	0.342	0.348	0.336		0.353	0.352	0.342	2.62
35) 4-Chloroanil	0.434	0.426	0.441	0.448	0.422		0.446	0.457	0.439	2.84
36) Hexachlorobu	0.238	0.235	0.246	0.251	0.257	0.256	0.260	0.253	0.249	3.62
37) 4-Chloro-3-m	0.298	0.288	0.296	0.300	0.279		0.302	0.306	0.295	3.13
38) 2-Methylnaph	0.746	0.727	0.758	0.787	0.768	0.761	0.814	0.785	0.768	3.51
39) 1-Methylnaph	0.703	0.704	0.715	0.755	0.740	0.747	0.779	0.751	0.737	3.69
40) 1,2,4,5-Tetr	0.454	0.453	0.459	0.489	0.472	0.492	0.502	0.483	0.475	3.99

Initial Calibration Summary

Job Number: JB37699

Sample: MSW579-ICC579

Account: ALNJ Accutest New Jersey

Lab FileID: W12584.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41) I	Naphthalene-d8a	-----ISTD-----								
42)	Caprolactam									
43)	I	Acenaphthene-d10	-----ISTD-----							
44)	Pentachloron	0.186	0.182	0.183	0.183	0.180	0.196	0.185	3.10	
45)	Hexachlorocyclo	0.420	0.409	0.447	0.398	0.361	0.406	0.438	0.411	
46)	2,4,6-Trichloro	0.435	0.426	0.437	0.434	0.430	0.441	0.452	0.436	
47)	2,4,5-Trichloro	0.464	0.446	0.470	0.463	0.447	0.473	0.485	0.464	
48)	2-Fluorobiphenyl	1.311	1.307	1.330	1.386	1.373	1.407	1.471	1.400	
49)	2-Chloronaphthalene	1.059	1.047	1.088	1.097	1.121	1.100	1.140	1.122	
50)	Acenaphthylene	1.699	1.679	1.790	1.821	1.828	1.784	1.879	1.868	
51)	Dimethylphthalate	1.304	1.277	1.339	1.362	1.360	1.335	1.411	1.396	
52)	2,4-Dinitrotoluene	0.403	0.390	0.403	0.380		0.376	0.415	0.394	
53)	Acenaphthene	1.061	1.051	1.097	1.121	1.146	1.116	1.164	1.146	
54)	2,4-Dinitrophenol	0.247	0.234	0.240	0.195		0.233	0.230	0.230	
55)	Dibenzofuran	1.636	1.613	1.696	1.744	1.756	1.745	1.788	1.778	
56)	2,6-Dinitrotoluene	0.305	0.300	0.312	0.286		0.277	0.317	0.299	
57)	4-Nitrophenol	0.183	0.180	0.184	0.183		0.173	0.194	0.183	
58)	2,3,4,6-Tetraphenylbenzene	0.457	0.444	0.463	0.461	0.452	0.476	0.486	0.463	
59)	Fluorene	1.274	1.261	1.334	1.374	1.401	1.379	1.429	1.405	
60)	4-Chlorophenol	0.711	0.708	0.763	0.783	0.792	0.764	0.802	0.803	
61)	Diethylphthalate	1.177	1.155	1.212	1.226	1.248	1.209	1.272	1.265	
62)	2-nitroaniline	0.353	0.339	0.346	0.307		0.295	0.347	0.331	
63)	3-nitroaniline	0.302	0.292	0.298	0.287		0.278	0.309	0.294	
64)	4-nitroaniline	0.305	0.294	0.299	0.286		0.271	0.313	0.295	
65)	Acenaphthene-d10a	-----ISTD-----								
66)	1,1'-Biphenyl									
67) I	Phenanthrene-d10	-----ISTD-----								
68)	4,6-Dinitrophenol	0.169	0.162	0.167	0.147	0.144	0.164	0.159	6.70	
69)	n-Nitrosodiphenylamine	0.497	0.491	0.519	0.525	0.520	0.566	0.546	0.532	
70)	1,2-Diphenylbenzene	0.521	0.442	0.467	0.474	0.488	0.483	0.496	0.480	
71)	2,4,6-Tribromophenol	0.166	0.165	0.163	0.159	0.146	0.166	0.164	0.161	
72)	4-Bromophenol	0.270	0.265	0.278	0.273	0.278	0.260	0.292	0.284	
73)	Hexachlorobenzene	0.291	0.288	0.305	0.302	0.302	0.300	0.317	0.306	
74)	Pentachlorobenzene	0.225	0.218	0.222	0.208		0.211	0.224	0.218	
75)	Phenanthrene	1.017	1.009	1.061	1.094	1.107	1.124	1.153	1.097	
76)	Anthracene	1.046	1.057	1.105	1.159	1.162	1.136	1.209	1.175	
77)	Carbazole	0.928	0.922	0.948	0.989	0.989	0.947	1.024	1.009	
78)	Di-n-butylphthalate	1.062	1.056	1.107	1.086	1.074	1.147	1.135	1.095	
79)	Fluoranthene	1.184	1.192	1.243	1.296	1.292	1.262	1.362	1.308	
80) I	Phenanthrene-d10a	-----ISTD-----								
81)	Atrazine									
82) I	Chrysene-d12	-----ISTD-----								
83)	Benzidine	0.259	0.250	0.285	0.268	0.241	0.284	0.264	6.83	
84)	Pyrene	1.027	1.004	1.068	1.087	1.068	1.007	1.125	1.102	
85)	Terphenyl-d1	0.895	0.874	0.909	0.953	0.917	0.876	0.994	0.956	
86)	3,3'-Dimethylbenzene	0.402	0.386	0.438	0.414	0.270	0.404	0.444	0.394	
87)	Butylbenzylbenzene	0.352	0.333	0.348	0.302	0.262	0.300	0.338	0.319	
88)	3,3'-Dichlorobiphenyl	0.429	0.422	0.441	0.399	0.317	0.391	0.446	0.406	
89)	Benzo[a]anthracene	0.996	0.992	1.044	1.081	1.084	1.047	1.119	1.094	
90)	Chrysene	0.985	0.960	1.016	1.050	1.066	1.045	1.082	1.057	
91)	bis(2-Ethylhexyl)benzene	0.537	0.516	0.540	0.460	0.385	0.459	0.522	0.489	
92) I	Perylene-d12	-----ISTD-----								
93)	Di-n-octylphthalate	0.810	0.837	0.840	0.738	0.546	0.682	0.815	0.753	
94)	Benzo[b]fluoranthene	1.343	1.313	1.306	1.177	1.064	0.992	1.211	1.189	

Initial Calibration Summary

Page 3 of 3

Job Number: JB37699

Sample: MSW579-ICC579

Account: ALNJ Accutest New Jersey

Lab FileID: W12584.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

95)	Benzo[k]fluo	1.079	1.092	1.061	1.239	1.264	1.220	1.260	1.252	1.183	7.55
96)	Benzo[a]pyre	1.052	1.038	1.103	1.135	1.005	0.925	1.086	1.128	1.059	6.62
97)	Indeno[1,2,3]	1.434	1.405	1.437	1.392	1.278	1.141	1.387	1.438	1.364	7.64
98)	Dibenz[a,h]a	1.166	1.148	1.178	1.156	1.061	0.945	1.156	1.199	1.126	7.43
99)	Benzo[g,h,i]	1.183	1.161	1.183	1.138	1.096	1.011	1.161	1.175	1.139	5.19

(#) = Out of Range ### Number of calibration levels exceeded format ###

W130530_8270+.m

Fri May 31 15:37:31 2013

9.7.1

9

Initial Calibration Verification

Job Number: JB37699

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12588.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\w12588.D Vial: 9
 Acq On : 30 May 2013 12:36 pm Operator: kristinr
 Sample : ICV579-50 Inst : MSW
 Misc : op33225,msw579,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\\W130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 18:03:11 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	89	0.00	4.21
2	N-nitrosodimethylamine		-----NA-----				
3 T	Pyridine		-----NA-----				
4 T	Aniline		-----NA-----				
5 S	2-Fluorophenol	1.083	1.078	0.5	89	0.00	3.26
6 T	bis(2-Chloroethyl)ether		-----NA-----				
7 S	Phenol-d5	1.320	1.259	4.6	83	0.00	3.94
8 C	Phenol	1.408	1.400	0.6	87	0.00	3.95
9 M	2-Chlorophenol	1.289	1.280	0.7	88	0.00	4.07
10 T	1,3-Dichlorobenzene		-----NA-----				
11 C	1,4-Dichlorobenzene		-----NA-----				
12 T	1,2-Dichlorobenzene		-----NA-----				
13 T	Benzyl alcohol		-----NA-----				
14 T	bis(2-chloroisopropyl)eth		-----NA-----				
15 T	o-cresol	1.091	1.090	0.1	86	0.00	4.43
16 T	Acetophenone		-----NA-----				
17 T	Hexachloroethane		-----NA-----				
18 P	N-Nitroso-di-n-propylamin		-----NA-----				
19 T	m+p-cresols	1.179	1.189	-0.8	87	0.00	4.55
20	4-methylphenol	1.179	1.189	-0.8	87	0.00	4.55
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	0# -0.06		4.21
22	Benzaldehyde		-----NA-----				
23 I	Naphthalene-d8	1.000	1.000	0.0	88	0.00	5.27
24 S	Nitrobenzene-d5		-----NA-----				
25 T	Nitrobenzene		-----NA-----				
26 T	Isophorone		-----NA-----				
27 C	2-Nitrophenol	0.196	0.198	-1.0	85	0.00	4.97
28 T	2,4-Dimethylphenol	0.332	0.337	-1.5	87	0.00	4.99
29 T	bis(2-Chloroethoxy)methan		-----NA-----				

		Amount	Calc.	%Drift		
30 T	Benzoic acid	50.000	56.295	-12.6	98	-0.01
						5.08
		AvgRF	CCRF	%Dev		
31 C	2,4-Dichlorophenol	0.345	0.349	-1.2	86	0.00
32 M	1,2,4-Trichlorobenzene		-----NA-----			
33 T	Naphthalene		-----NA-----			
34 T	2,6-Dichlorophenol	0.342	0.345	-0.9	86	0.00
35 T	4-Chloroaniline		-----NA-----			
36 C	Hexachlorobutadiene		-----NA-----			

Initial Calibration Verification

Job Number: JB37699

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12588.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

37 C	4-Chloro-3-methylphenol	0.295	0.298	-1.0	86	0.00	5.76
38 T	2-Methylnaphthalene		-----NA-----				
39 T	1-Methylnaphthalene		-----NA-----				
40 T	1,2,4,5-Tetrachlorobenzene		-----NA-----				
41 I	Naphthalene-d8a	1.000	1.000	0.0	0#	-0.06	5.27
42	Caprolactam		-----NA-----				
43 I	Acenaphthene-d10	1.000	1.000	0.0	88	0.00	6.81
44 T	Pentachloronitrobenzene		-----NA-----				
45 P	Hexachlorocyclopentadiene		-----NA-----				
46 C	2,4,6-Trichlorophenol	0.436	0.434	0.5	85	0.00	6.15
47 T	2,4,5-Trichlorophenol	0.464	0.482	-3.9	88	0.00	6.18
48 S	2-Fluorobiphenyl		-----NA-----				
49 T	2-Chloronaphthalene		-----NA-----				
50 M	Acenaphthylene		-----NA-----				
51 T	Dimethylphthalate		-----NA-----				
52 T	2,4-Dinitrotoluene		-----NA-----				
53 C	Acenaphthene		-----NA-----				
54 P	2,4-Dinitrophenol	0.230	0.208	9.6	79	0.00	6.87
55 T	Dibenzofuran		-----NA-----				
56 M	2,6-Dinitrotoluene		-----NA-----				
57 P	4-Nitrophenol	0.183	0.197	-7.7	90	0.00	6.93
58 T	2,3,4,6-Tetrachlorophenol	0.463	0.474	-2.4	86	0.00	7.14
59 T	Fluorene		-----NA-----				
60 T	4-Chlorophenyl-phenylethane		-----NA-----				
61 T	Diethylphthalate		-----NA-----				
62 T	2-nitroaniline		-----NA-----				
63 T	3-nitroaniline		-----NA-----				
64 T	4-nitroaniline		-----NA-----				
65	Acenaphthene-d10a	1.000	1.000	0.0	0#	-0.05	6.81
66	1,1'-Biphenyl		-----NA-----				
67 I	Phenanthrene-d10	1.000	1.000	0.0	90	0.00	8.22
68 T	4,6-Dinitro-2-methylphenol	0.159	0.162	-1.9	89	-0.01	7.39
69 C	n-Nitrosodiphenylamine		-----NA-----				
70 T	1,2-Diphenylhydrazine		-----NA-----				
71 S	2,4,6-Tribromophenol	0.161	0.152	5.6	83	0.00	7.55
72 T	4-Bromophenyl-phenylether		-----NA-----				
73 T	Hexachlorobenzene		-----NA-----				
74 C	Pentachlorophenol	0.218	0.234	-7.3	94	0.00	8.09
75 T	Phenanthrene		-----NA-----				
76 T	Anthracene		-----NA-----				
77 T	Carbazole		-----NA-----				
78 T	Di-n-butylphthalate		-----NA-----				
79 C	Fluoranthene		-----NA-----				
80 I	Phenanthrene-d10a	1.000	1.000	0.0	0#	0.00	8.27
81	Atrazine		-----NA-----				
82 I	Chrysene-d12	1.000	1.000	0.0	98	-0.01	11.20
83 T	Benzidine		-----NA-----				
84 M	Pyrene		-----NA-----				
85 S	Terphenyl-d14		-----NA-----				
86	3,3-Dimethylbenzidine		-----NA-----				
87 T	Butylbenzylphthalate		-----NA-----				
88 T	3,3'-Dichlorobenzidine		-----NA-----				
89 T	Benzo[a]anthracene		-----NA-----				
90 T	Chrysene		-----NA-----				

Initial Calibration Verification

Page 3 of 3

Job Number: JB37699

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12588.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

91 T	bis(2-Ethylhexyl)phthalat		-----NA-----							
92 I	Perylene-d12	1.000	1.000	0.0	100	0.00	12.79			
93 C	Di-n-octylphthalate		-----NA-----							
94 T	Benzo[b]fluoranthene		-----NA-----							
95 T	Benzo[k]fluoranthene		-----NA-----							
96 C	Benzo[a]pyrene		-----NA-----							
97 T	Indeno[1,2,3-cd]pyrene		-----NA-----							
98 T	Dibenz[a,h]anthracene		-----NA-----							
99 T	Benzo[g,h,i]perylene		-----NA-----							

(#) = Out of Range
w12584.D W130530_8270+.m

SPCC's out = 2 CCC's out = 7
Fri May 31 15:20:54 2013

9.7.2
9

Initial Calibration Verification

Job Number: JB37699

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12589.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\w12589.D Vial: 10
 Acq On : 30 May 2013 12:59 pm Operator: kristinr
 Sample : ICV579-20 Inst : MSW
 Misc : op33225,msw579,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\\W130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 18:03:11 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	86	0.00
2 S	N-nitrosodimethylamine	0.628	0.652	-3.8	88	0.00
3 T	Pyridine	1.179	1.137	3.6	82	0.02
4 T	Aniline			-----NA-----		
5 S	2-Fluorophenol			-----NA-----		
6 T	bis(2-Chloroethyl)ether	0.675	0.679	-0.6	85	0.00
7 S	Phenol-d5			-----NA-----		
8 C	Phenol			-----NA-----		
9 M	2-Chlorophenol			-----NA-----		
10 T	1,3-Dichlorobenzene	1.484	1.533	-3.3	88	0.00
11 C	1,4-Dichlorobenzene	1.568	1.591	-1.5	87	0.00
12 T	1,2-Dichlorobenzene	1.431	1.491	-4.2	88	0.00
13 T	Benzyl alcohol	0.798	0.799	-0.1	87	0.00
14 T	bis(2-chloroisopropyl)eth	0.887	1.057	-19.2	100	0.00
15 T	o-cresol			-----NA-----		
16 T	Acetophenone	1.718	1.695	1.3	82	0.00
17 T	Hexachloroethane	0.493	0.510	-3.4	88	0.00
18 P	N-Nitroso-di-n-propylamin	0.721	0.744	-3.2	88	-0.01
19 T	m+p-cresols			-----NA-----		
20	4-methylphenol			-----NA-----		
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	0# -0.06	4.21
22	Benzaldehyde			-----NA-----		
23 I	Naphthalene-d8	1.000	1.000	0.0	86	0.00
24 S	Nitrobenzene-d5	0.295	0.296	-0.3	83	0.00
25 T	Nitrobenzene	0.304	0.308	-1.3	84	0.00
26 T	Isophorone	0.565	0.550	2.7	82	-0.01
27 C	2-Nitrophenol			-----NA-----		
28 T	2,4-Dimethylphenol			-----NA-----		
29 T	bis(2-Chloroethoxy)methan	0.356	0.363	-2.0	87	0.00
30 T	Benzoic acid			-----NA-----		
31 C	2,4-Dichlorophenol			-----NA-----		
32 M	1,2,4-Trichlorobenzene	0.383	0.404	-5.5	91	0.00
33 T	Naphthalene	1.033	1.076	-4.2	89	0.00
34 T	2,6-Dichlorophenol			-----NA-----		
35 T	4-Chloroaniline			-----NA-----		
36 C	Hexachlorobutadiene	0.249	0.259	-4.0	89	0.00

9.7.3

9

Initial Calibration Verification

Page 2 of 3

Job Number: JB37699

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12589.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

37 C	4-Chloro-3-methylphenol		-----NA-----				
38 T	2-Methylnaphthalene	0.768	0.785	-2.2	86	0.00	5.88
39 T	1-Methylnaphthalene	0.737	0.748	-1.5	85	0.00	5.98
40 T	1,2,4,5-Tetrachlorobenzene	0.475	0.483	-1.7	85	0.00	6.06
41 I	Naphthalene-d8a	1.000	1.000	0.0	0#	-0.06	5.27
42	Caprolactam		-----NA-----				
43 I	Acenaphthene-d10	1.000	1.000	0.0	84	0.00	6.81
44 T	Pentachloronitrobenzene	0.185	0.183	1.1	84	0.00	8.17
45 P	Hexachlorocyclopentadiene	0.411	0.232	43.6#	49#	0.00	6.08
46 C	2,4,6-Trichlorophenol		-----NA-----				
47 T	2,4,5-Trichlorophenol		-----NA-----				
48 S	2-Fluorobiphenyl	1.373	1.399	-1.9	85	0.00	6.22
49 T	2-Chloronaphthalene	1.097	1.190	-8.5	91	0.00	6.30
50 M	Acenaphthylene	1.794	1.501	16.3	69	0.00	6.67
51 T	Dimethylphthalate	1.348	1.399	-3.8	86	0.00	6.60
52 T	2,4-Dinitrotoluene	0.394	0.416	-5.6	92	-0.01	7.01
53 C	Acenaphthene	1.113	1.206	-8.4	91	0.00	6.84
54 P	2,4-Dinitrophenol		-----NA-----				
55 T	Dibenzofuran	1.720	1.792	-4.2	86	0.00	6.98
56 M	2,6-Dinitrotoluene	0.299	0.295	1.3	87	0.00	6.66
57 P	4-Nitrophenol		-----NA-----				
58 T	2,3,4,6-Tetrachlorophenol		-----NA-----				
59 T	Fluorene	1.357	1.495	-10.2	92	0.00	7.30
60 T	4-Chlorophenyl-phenylether	0.766	0.839	-9.5	90	0.00	7.30
61 T	Diethylphthalate	1.221	1.313	-7.5	90	-0.01	7.24
62 T	2-nitroaniline	0.331	0.335	-1.2	92	0.00	6.42
63 T	3-nitroaniline	0.294	0.264	10.2	77	0.00	6.78
64 T	4-nitroaniline	0.295	0.295	0.0	87	-0.01	7.35
65	Acenaphthene-d10a	1.000	1.000	0.0	0#	-0.26	6.60
66	1,1'-Biphenyl		-----NA-----				
67 I	Phenanthrene-d10	1.000	1.000	0.0	88	0.00	8.22
68 T	4,6-Dinitro-2-methylphenol		-----NA-----				
69 C	n-Nitrosodiphenylamine	0.524	0.506	3.4	85	0.00	7.41
70 T	1,2-Diphenylhydrazine	0.481	0.451	6.2	84	0.00	7.45
71 S	2,4,6-Tribromophenol		-----NA-----				
72 T	4-Bromophenyl-phenylether	0.275	0.275	0.0	89	0.00	7.77
73 T	Hexachlorobenzene	0.301	0.313	-4.0	91	0.00	7.92
74 C	Pentachlorophenol		-----NA-----				
75 T	Phenanthrene	1.083	1.134	-4.7	91	0.00	8.24
76 T	Anthracene	1.131	1.147	-1.4	87	0.00	8.29
77 T	Carbazole	0.969	1.039	-7.2	93	0.00	8.46
78 T	Di-n-butylphthalate	1.095	1.067	2.6	87	0.00	8.89
79 C	Fluoranthene	1.267	1.437	-13.4	98	0.00	9.53
80 I	Phenanthrene-d10a	1.000	1.000	0.0	0#	0.00	8.27
81	Atrazine		-----NA-----				
82 I	Chrysene-d12	1.000	1.000	0.0	95	0.00	11.20
83 T	Benzidine		-----NA-----				
84 M	Pyrene	1.061	1.071	-0.9	93	0.00	9.78
85 S	Terphenyl-d14	0.922	0.885	4.0	88	0.00	9.98
86	3,3-Dimethylbenzidine		-----NA-----				
87 T	Butylbenzylphthalate	0.319	0.307	3.8	96	0.00	10.60
88 T	3,3'-Dichlorobenzidine		-----NA-----				
89 T	Benzo[a]anthracene	1.057	1.145	-8.3	100	0.00	11.18
90 T	Chrysene	1.033	1.076	-4.2	97	0.00	11.23

9.7.3
9

Initial Calibration Verification

Page 3 of 3

Job Number: JB37699

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12589.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

91 T	bis(2-Ethylhexyl)phthalat	0.489	0.457	6.5	94	0.00	11.32
92 I	Perylene-d12	1.000	1.000	0.0	94	0.00	12.79
93 C	Di-n-octylphthalate	0.753	0.778	-3.3	100	0.00	12.01
94 T	Benzo[b]fluoranthene	1.199	1.230	-2.6	99	0.00	12.40
95 T	Benzo[k]fluoranthene	1.183	1.256	-6.2	96	-0.01	12.42
96 C	Benzo[a]pyrene	1.059	1.015	4.2	84	-0.01	12.73
97 T	Indeno[1,2,3-cd]pyrene	1.364	1.430	-4.8	97	-0.02	13.97
98 T	Dibenz[a,h]anthracene	1.126	1.216	-8.0	99	-0.01	13.98
99 T	Benzo[g,h,i]perylene	1.139	1.192	-4.7	99	-0.01	14.29

(#) = Out of Range
w12583.D W130530_8270+.m

SPCC's out = 2 CCC's out = 6
Fri May 31 15:36:06 2013

9.7.3

9

Initial Calibration Verification

Page 1 of 3

Job Number: JB37699

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12590.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\w12590.D Vial: 11
Acq On : 30 May 2013 1:22 pm Operator: kristinr
Sample : ICV579-20 Inst : MSW
Misc : op33225,msw579,,,1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\\W130530_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu May 30 18:03:11 2013
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I 1,4-Dichlorobenzene-d4	1.000	1.000	0.0	83	0.00	4.21
2	N-nitrosodimethylamine		-----NA-----				
3	T Pyridine		-----NA-----				
4	T Aniline	0.559	0.531	5.0	75	0.00	3.98
5	S 2-Fluorophenol		-----NA-----				
6	T bis(2-Chloroethyl)ether		-----NA-----				
7	S Phenol-d5		-----NA-----				
8	C Phenol		-----NA-----				
9	M 2-Chlorophenol		-----NA-----				
10	T 1,3-Dichlorobenzene		-----NA-----				
11	C 1,4-Dichlorobenzene		-----NA-----				
12	T 1,2-Dichlorobenzene		-----NA-----				
13	T Benzyl alcohol		-----NA-----				
14	T bis(2-chloroisopropyl)eth		-----NA-----				
15	T o-cresol		-----NA-----				
16	T Acetophenone		-----NA-----				
17	T Hexachloroethane		-----NA-----				
18	P N-Nitroso-di-n-propylamin		-----NA-----				
19	T m+p-cresols		-----NA-----				
20	T 4-methylphenol		-----NA-----				
21	I 1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	0# -0.06	4.21	
22	T Benzaldehyde		-----NA-----				
23	I Naphthalene-d8	1.000	1.000	0.0	81	0.00	5.27
24	S Nitrobenzene-d5		-----NA-----				
25	T Nitrobenzene		-----NA-----				
26	T Isophorone		-----NA-----				
27	C 2-Nitrophenol		-----NA-----				
28	T 2,4-Dimethylphenol		-----NA-----				
29	T bis(2-Chloroethoxy)methan		-----NA-----				
30	T Benzoic acid		-----NA-----				
31	C 2,4-Dichlorophenol		-----NA-----				
32	M 1,2,4-Trichlorobenzene		-----NA-----				
33	T Naphthalene		-----NA-----				
34	T 2,6-Dichlorophenol		-----NA-----				
35	T 4-Chloroaniline	0.439	0.399	9.1	72	0.00	5.35
36	C Hexachlorobutadiene		-----NA-----				

9.7.4

9

Initial Calibration Verification

Page 2 of 3

Job Number: JB37699

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12590.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

37 C	4-Chloro-3-methylphenol		-----	NA-----			
38 T	2-Methylnaphthalene		-----	NA-----			
39 T	1-Methylnaphthalene		-----	NA-----			
40 T	1,2,4,5-Tetrachlorobenzen		-----	NA-----			
41 I	Naphthalene-d8a	1.000	1.000	0.0	0# -0.06	5.27	
42	Caprolactam		-----	NA-----			
43 I	Acenaphthene-d10	1.000	1.000	0.0	78 0.00	6.81	
44 T	Pentachloronitrobenzene		-----	NA-----			
45 P	Hexachlorocyclopentadiene		-----	NA-----			
46 C	2,4,6-Trichlorophenol		-----	NA-----			
47 T	2,4,5-Trichlorophenol		-----	NA-----			
48 S	2-Fluorobiphenyl		-----	NA-----			
49 T	2-Chloronaphthalene		-----	NA-----			
50 M	Acenaphthylene		-----	NA-----			
51 T	Dimethylphthalate		-----	NA-----			
52 T	2,4-Dinitrotoluene		-----	NA-----			
53 C	Acenaphthene		-----	NA-----			
54 P	2,4-Dinitrophenol		-----	NA-----			
55 T	Dibenzofuran		-----	NA-----			
56 M	2,6-Dinitrotoluene		-----	NA-----			
57 P	4-Nitrophenol		-----	NA-----			
58 T	2,3,4,6-Tetrachlorophenol		-----	NA-----			
59 T	Fluorene		-----	NA-----			
60 T	4-Chlorophenyl-phenylethane		-----	NA-----			
61 T	Diethylphthalate		-----	NA-----			
62 T	2-nitroaniline		-----	NA-----			
63 T	3-nitroaniline		-----	NA-----			
64 T	4-nitroaniline		-----	NA-----			
65	Acenaphthene-d10a	1.000	1.000	0.0	0# -0.05	6.81	
66	1,1'-Biphenyl		-----	NA-----			
67 I	Phenanthrene-d10	1.000	1.000	0.0	79 0.00	8.22	
68 T	4,6-Dinitro-2-methylphenol		-----	NA-----			
69 C	n-Nitrosodiphenylamine		-----	NA-----			
70 T	1,2-Diphenylhydrazine		-----	NA-----			
71 S	2,4,6-Tribromophenol		-----	NA-----			
72 T	4-Bromophenyl-phenylether		-----	NA-----			
73 T	Hexachlorobenzene		-----	NA-----			
74 C	Pentachlorophenol		-----	NA-----			
75 T	Phenanthrene		-----	NA-----			
76 T	Anthracene		-----	NA-----			
77 T	Carbazole		-----	NA-----			
78 T	Di-n-butylphthalate		-----	NA-----			
79 C	Fluoranthene		-----	NA-----			
80 I	Phenanthrene-d10a	1.000	1.000	0.0	0# 0.00	8.27	
81	Atrazine		-----	NA-----			
82 I	Chrysene-d12	1.000	1.000	0.0	85 -0.01	11.20	
83 T	Benzidine	0.264	0.405	-53.4#	129 0.00	9.68	
84 M	Pyrene		-----	NA-----			
85 S	Terphenyl-d14		-----	NA-----			
86	3,3-Dimethylbenzidine		-----	NA-----			
87 T	Butylbenzylphthalate		-----	NA-----			
88 T	3,3'-Dichlorobenzidine	0.406	0.374	7.9	80 0.00	11.17	
89 T	Benzo[a]anthracene		-----	NA-----			
90 T	Chrysene		-----	NA-----			

9.7.4
9

Initial Calibration Verification

Page 3 of 3

Job Number: JB37699

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12590.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

91	T	bis(2-Ethylhexyl)phthalat		-----NA-----						
92	I	Perylene-d12	1.000	1.000	0.0	88	0.00	12.79		
93	C	Di-n-octylphthalate		-----NA-----						
94	T	Benzo[b]fluoranthene		-----NA-----						
95	T	Benzo[k]fluoranthene		-----NA-----						
96	C	Benzo[a]pyrene		-----NA-----						
97	T	Indeno[1,2,3-cd]pyrene		-----NA-----						
98	T	Dibenz[a,h]anthracene		-----NA-----						
99	T	Benzo[g,h,i]perylene		-----NA-----						

(#) = Out of Range
w12583.D W130530_8270+.m

SPCC's out = 4 CCC's out = 13
Fri May 31 15:36:08 2013

9.7.4

9

Initial Calibration Summary

Job Number: JB37699

Sample: MSW580-ICC580

Account: ALNJ Accutest New Jersey

Lab FileID: W12593.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Response Factor Report MSW

Method : C:\msdchem\1\methods\W130530_AP9+.m (RTE Integrator)
 Title : SW-846 Method 8270
 Last Update : Fri May 31 10:52:01 2013
 Response via : Initial Calibration

Calibration Files

50	=W12593.D	5	=W12594.D	10	=W12595.D	20	=W12596.D
80	=W12598.D	40	=W12597.D	100	=W12599.D	120	=W12058.D
2	=w12108.D		=				

Compound

	50	5	10	20	80	40	100	120	2	Avg	%RSD
<hr/>											
1) I 1,4-Dichlorobenzene-d							-----ISTD-----				
2) Methyl Methacrylate	0.586	0.548	0.550	0.558	0.548	0.562	0.558		0.559	2.39	
3) N-Nitrosodimethylamine	0.591	0.532	0.559	0.570	0.569	0.571	0.579		0.567	3.23	
4) Pyridine	1.118	1.057	1.044	1.044	1.071	1.106	1.087		1.075	2.73	
5) Ethyl Methacrylate	0.795	0.797	0.775	0.759	0.760	0.769	0.774		0.776	1.96	
6) 2-Picoline	1.222	1.193	1.161	1.185	1.198	1.199	1.220		1.197	1.76	
7) n-Nitrosomethylamine	0.479	0.447	0.458	0.470	0.467	0.472	0.475		0.467	2.34	
8) Methyl Methanesulfonate	0.545	0.529	0.532	0.535	0.536	0.531	0.541		0.536	1.09	
9) n-Nitrosodiethylamine	0.545	0.511	0.515	0.526	0.535	0.528	0.545		0.529	2.53	
10) Ethyl Methanesulfonate	0.761	0.720	0.734	0.747	0.748	0.739	0.756		0.743	1.86	
11) Aniline	1.738	1.618	1.633	1.652	1.747	1.705	1.749		1.692	3.34	
12) 2-Fluorophenol	1.053	0.988	0.995	1.009	1.047	1.038	1.053		1.026	2.73	
13) bis(2-Chloroethyl)ether	1.031	0.985	1.006	0.993	1.009	0.997	1.014		1.005	1.51	
14) Pentachloroethane	0.404	0.397	0.407	0.395	0.402	0.403	0.410		0.403	1.29	
15) Phenol-d5	1.261	1.179	1.212	1.226	1.281	1.265	1.286		1.244	3.20	
16) Phenol	1.343	1.224	1.261	1.287	1.352	1.323	1.370		1.308	4.05	
17) 2-Chlorophenol	1.259	1.193	1.203	1.223	1.249	1.225	1.267		1.231	2.28	
18) 1,3-Dichlorobenzene	1.424	1.377	1.395	1.388	1.415	1.415	1.425		1.405	1.34	
19) 1,4-Dichlorobenzene	1.496	1.470	1.476	1.461	1.492	1.479	1.489		1.480	0.84	
20) 1,2-Dichlorobenzene	1.378	1.326	1.342	1.353	1.363	1.357	1.365		1.355	1.25	
21) Benzyl alcohol	0.787	0.698	0.742	0.744	0.788	0.769	0.797		0.761	4.62	
22) bis(2-chloroisopropyl)ether	0.822	0.792	0.798	0.786	0.799	0.791	0.802		0.798	1.47	
23) o-cresol											

9.7.5

6

Initial Calibration Summary

Job Number: JB37699

Sample: MSW580-ICC580

Account: ALNJ Accutest New Jersey

Lab FileID: W12593.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

	1.070	1.019	1.024	1.034	1.073	1.055	1.085	1.051	2.46
24)	Acetophenone		1.653	1.604	1.606	1.629	1.640	1.640	1.630
25)	n-Nitrosopyrrolidine		0.586	0.486	0.512	0.544	0.586	0.573	0.599
26)	n-Nitrosomorpholine		0.589	0.551	0.564	0.574	0.578	0.576	0.586
27)	Hexachloroethane		0.471	0.457	0.449	0.463	0.467	0.464	0.469
28)	N-Nitroso-di-n-propylamine		0.736	0.644	0.697	0.712	0.715	0.710	0.713
29)	m+p-cresols		1.156	1.050	1.082	1.107	1.152	1.137	1.153
30)	4-methylphenol		1.156	1.050	1.082	1.107	1.152	1.137	1.153
31)	I Naphthalene-d8								-----ISTD-----
32)	Nitrobenzene-d5		0.286	0.277	0.277	0.283	0.291	0.290	0.289
33)	Nitrobenzene		0.303	0.295	0.298	0.299	0.301	0.301	0.301
34)	n-Nitrosopiperidine		0.161	0.149	0.153	0.157	0.161	0.159	0.164
35)	Isophorone		0.520	0.508	0.512	0.518	0.523	0.517	0.523
36)	2-Nitrophenol		0.194	0.169	0.179	0.186	0.196	0.191	0.199
37)	2,4-Dimethylphenol		0.320	0.315	0.308	0.317	0.323	0.323	0.324
38)	bis(2-Chloroethoxy)methane		0.433	0.420	0.424	0.423	0.435	0.432	0.440
39)	alpha, alpha-Dimethylphenethyl		0.032	0.033	0.036	0.035	0.033	0.038	0.029
40)	O,O,O-Triethyl phosphorothioate		0.149	0.142	0.148	0.146	0.156	0.151	0.154
41)	Benzoic acid		0.237		0.165	0.208	0.241	0.233	0.244
42)	2,4-Dichlorophenol		0.335	0.314	0.323	0.331	0.338	0.334	0.344
43)	1,2,4-Trichlorobenzene		0.364	0.362	0.357	0.359	0.364	0.368	0.367
44)	Naphthalene		0.973	0.968	0.974	0.976	0.973	0.978	0.981
45)	2,6-Dichlorophenol		0.328	0.316	0.329	0.328	0.334	0.332	0.336
46)	4-Chloroaniline		0.429	0.401	0.410	0.417	0.436	0.427	0.443
47)	Hexachloropropene		0.268	0.245	0.252	0.259	0.278	0.271	0.275
48)	Hexachlorobutadiene		0.238	0.234	0.236	0.234	0.240	0.238	0.240
49)	n-Nitroso-di-n-butylamine		0.203	0.183	0.194	0.197	0.206	0.204	0.208
50)	p-phenylenediamine		0.224	0.241	0.259	0.210	0.176	0.256	0.197
51)	4-Chloro-3-methylphenol		0.296	0.276	0.272	0.277	0.289	0.288	0.286
52)	Safrole		0.317	0.312	0.313	0.312	0.326	0.319	0.319
53)	2-Methylnaphthalene								

9.7.5

6

Initial Calibration Summary

Job Number: JB37699

Sample: MSW580-ICC580

Account: ALNJ Accutest New Jersey

Lab FileID:

W12593.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

54)	1-methylnaphthalene	0.740 0.722 0.728 0.725 0.738 0.735 0.741	0.732	1.05
		0.693 0.678 0.682 0.697 0.701 0.704 0.700	0.694	1.44
55)	I Acenaphthene-d10	-----ISTD-----		
56)	Hexachlorocyclopentadiene	0.180 0.155 0.164 0.171 0.181 0.181 0.184	0.174	6.22
57)	1,2,4,5-Tetrachlorobenzene	0.644 0.658 0.657 0.667 0.634 0.660 0.629	0.650	2.23
58)	2,4,6-Trichlorophenol	0.414 0.391 0.400 0.420 0.419 0.419 0.428	0.413	3.13
59)	2,4,5-Trichlorophenol	0.453 0.441 0.434 0.452 0.451 0.457 0.460	0.450	1.99
60)	2-Fluorobiphenyl	1.250 1.266 1.274 1.299 1.261 1.294 1.245	1.270	1.62
61)	2-Choronaphthalene	1.138 1.153 1.142 1.154 1.171 1.170 1.183	1.159	1.42
62)	1-Choronaphthalene	0.933 0.931 0.958 0.955 0.922 0.959 0.939	0.943	1.57
63)	Isosafrole	0.422 0.404 0.415 0.428 0.425 0.440 0.430	0.423	2.68
64)	1,4-Naphthoquinone	0.424 0.472 0.467 0.460 0.409 0.448 0.410	0.442	6.09
65)	Acenaphthylene	1.703 1.707 1.694 1.740 1.693 1.730 1.721	1.713	1.06
66)	Dimethylphthalate	1.263 1.271 1.264 1.277 1.268 1.292 1.279	1.273	0.78
67)	1,3-Dinitrobenzene	0.215 0.160 0.180 0.201 0.224 0.222 0.229	0.204	12.67
68)	2,6-Dinitrotoluene	0.299 0.258 0.272 0.292 0.305 0.301 0.309	0.291	6.46
69)	Acenaphthene	1.040 1.062 1.057 1.061 1.043 1.065 1.054	1.055	0.91
70)	2,4-Dinitrophenol	0.230 0.200 0.238 0.229 0.248	0.229	7.81
71)	Pentachlorobenzene	0.681 0.679 0.691 0.691 0.678 0.691 0.695	0.687	1.00
72)	Dibenzofuran	1.610 1.643 1.642 1.656 1.635 1.656 1.654	1.642	1.00
73)	2,4-Dinitrotoluene	0.384 0.340 0.347 0.372 0.397 0.392 0.402	0.377	6.48
74)	4-Nitrophenol	0.176 0.153 0.165 0.176 0.178 0.186	0.172	6.87
75)	o-toluidine	0.670 0.675 0.664 0.676 0.669 0.679 0.679	0.673	0.84
76)	1-Naphthylamine	0.544 0.554 0.553 0.554 0.533 0.551 0.539	0.547	1.53
77)	2,3,4,6-Tetrachlorophenol	0.446 0.430 0.434 0.449 0.446 0.457 0.447	0.444	2.08
78)	2-Naphthylamine	1.182 1.121 1.135 1.162 1.181 1.196 1.190	1.167	2.48
79)	Fluorene	1.271 1.255 1.269 1.273 1.263 1.296 1.270	1.271	1.01
80)	4-Chlorophenyl-phenylether	0.720 0.737 0.747 0.744 0.722 0.738 0.723	0.733	1.51
81)	5-Nitro-o-toluidine	0.369 0.316 0.333 0.352 0.374 0.373 0.378	0.357	6.68
82)	Diethylphthalate	1.135 1.128 1.147 1.158 1.160 1.170 1.159	1.151	1.30
83)	2-nitroaniline			

Initial Calibration Summary

Job Number: JB37699

Sample: MSW580-ICC580

Account: ALNJ Accutest New Jersey

Lab FileID:

W12593.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

84)	3-nitroaniline	0.329 0.248 0.277 0.312 0.339 0.329 0.346	0.312	11.58
85)	4-nitroaniline	0.289 0.238 0.258 0.277 0.291 0.293 0.301	0.278	8.04
86)	I Phenanthrene-d10	-----ISTD-----		
87)	tetraethyl dithiopyrophosphate	0.156 0.119 0.138 0.168 0.154 0.175	0.152	13.40
88)	4,6-Dinitro-2-methylphenol	0.159 0.137 0.148 0.162 0.156 0.165	0.154	6.78
89)	Thionazin	0.083 0.071 0.078 0.086 0.084 0.087	0.081	7.53
90)	phorate	0.258 0.201 0.218 0.238 0.241 0.238 0.219	0.231	8.21
91)	parathion	0.108 0.082 0.091 0.101 0.112 0.109 0.112	0.102	11.28
92)	methyl parathion	0.188 0.136 0.153 0.173 0.182 0.184 0.180	0.171	11.29
93)	Disulfoton	0.235 0.187 0.184 0.212 0.227 0.217 0.226	0.212	9.44
94)	Dimethoate	0.172 0.137 0.146 0.158 0.169 0.170 0.170	0.160	8.65
95)	Diallate	0.184 0.172 0.179 0.179 0.178 0.182 0.180	0.179	2.12
96)	Diphenylamine	1.112 1.100 1.097 1.114 1.067 1.099 1.073	1.094	1.66
97)	n-Nitrosodiphenylamine	0.555 0.550 0.549 0.557 0.533 0.549 0.536	0.547	1.65
98)	1,2-Diphenylhydrazine	0.439 0.423 0.428 0.441 0.424 0.430 0.428	0.431	1.62
99)	2,4,6-Tribromophenol	0.162 0.152 0.153 0.157 0.164 0.162 0.162	0.159	2.98
100)	sym-Trinitrobenzene	0.126 0.098 0.112 0.136 0.125	0.119	12.45
101)	Phenacetin	0.285 0.253 0.261 0.275 0.283 0.280 0.284	0.274	4.61
102)	4-Bromophenyl-phenylether	0.268 0.261 0.264 0.267 0.266 0.265 0.269	0.266	0.94
103)	Hexachlorobenzene	0.291 0.289 0.286 0.290 0.292 0.291 0.292	0.290	0.75
104)	Pentachlorophenol	0.221 0.196 0.204 0.217 0.224 0.220 0.225	0.215	5.18
105)	4-Aminobiphenyl	1.112 1.100 1.097 1.114 1.067 1.099 1.073	1.094	1.66
106)	Pentachloronitrobenzene	0.095 0.087 0.091 0.093 0.094 0.094 0.094	0.093	3.21
107)	Pronamide	0.324 0.271 0.290 0.309 0.327 0.323 0.326	0.310	7.02
108)	2-sec-Butyl-4,6-Dinitrophenol	0.753 0.650 0.708 0.752 0.754 0.740	0.726	5.67
109)	Phenanthrene	1.020 1.022 1.018 1.030 1.003 1.016 1.004	1.016	0.96
110)	Anthracene	1.081 1.088 1.087 1.101 1.048 1.094 1.038	1.077	2.23
111)	Carbazole	0.956 0.943 0.924 0.939 0.938 0.939 0.933	0.939	1.03
112)	Di-n-butylphthalate	1.089 1.001 1.028 1.059 1.073 1.081 1.069	1.057	2.98
113)	4-Nitroquinoline-1-oxide			

Initial Calibration Summary

Job Number: JB37699

Sample: MSW580-ICC580

Account: ALNJ Accutest New Jersey

Lab FileID: W12593.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

	0.064	0.025	0.040	0.075	0.059	0.080		0.057	36.82
---- Quadratic regression ---- Coefficient = 0.9986									
Response Ratio = -0.00806 + 0.05318 *A + 0.01261 *A^2									
114) Methapyrilene	0.159	0.122	0.136	0.146	0.170	0.163	0.171	0.153	12.10
115) Isodrin	0.120	0.117	0.117	0.120	0.122	0.122	0.119	0.119	1.67
116) Fluoranthene	1.246	1.237	1.212	1.219	1.211	1.233	1.204	1.223	1.27
117) I Chrysene-d12							-----ISTD-----		
118) kepone	0.097	0.088						0.093	7.10
---- Linear regression ---- Coefficient = 1.0000									
Response Ratio = 0.00233 + 0.07872 *A									
119) Famphur	0.025	0.012	0.022	0.025				0.021#	28.44
---- Quadratic regression ---- Coefficient = 0.9996									
Response Ratio = -0.01719 + 0.05204 *A + -0.01067 *A^2									
120) Benzidine	0.435	0.370	0.415	0.439	0.439	0.438		0.423	6.49
121) Pyrene	0.996	0.974	0.997	1.036	0.978	1.013	0.974	0.995	2.34
122) Terphenyl-d14	0.852	0.827	0.859	0.897	0.822	0.876	0.796	0.847	4.05
123) Aramite	0.058	0.041	0.047	0.054	0.058	0.056	0.057	0.053	12.17
124) p-Dimethylaminoazobenzene	0.237	0.200	0.220	0.235	0.232	0.238	0.231	0.227	5.88
125) Chlorobenzilate	0.640	0.511	0.566	0.608	0.641	0.636	0.629	0.605	8.07
126) 3,3'-Dimethylbenzidine	1.107	0.979	1.040	1.113	1.103	1.124	1.100	1.081	4.85
127) Butylbenzylphthalate	0.345	0.303	0.320	0.332	0.344	0.344	0.344	0.333	4.87
128) 2-Acetylaminofluorene	0.368	0.309	0.341	0.377	0.369	0.383		0.358	7.80
129) 3,3'-Dichlorobenzidine	0.412	0.364	0.387	0.410	0.408	0.413	0.407	0.400	4.58
130) Benzo[a]anthracene	0.995	0.998	1.011	1.025	0.974	1.006	0.968	0.997	2.02
131) Chrysene	0.957	0.958	0.967	0.979	0.935	0.954	0.935	0.955	1.69
132) bis(2-Ethylhexyl)phthalate	0.514	0.405	0.455	0.486	0.512	0.508	0.516	0.485	8.58
133) I Perylene-d12							-----ISTD-----		
134) Di-n-octylphthalate	0.856	0.621	0.709	0.772	0.872	0.830	0.851	0.787	11.78
135) 7,12-Dimethylbenz(a)anthracene	0.582	0.555	0.568	0.578	0.575	0.583	0.562	0.572	1.86
136) Benzo[b]fluoranthene	1.209	1.114	1.129	1.083	1.172	1.116		1.137	4.01
137) Benzo[k]fluoranthene	1.089	1.076	1.132	1.210	1.116	1.162	1.059	1.120	4.70
138) Benzo[a]pyrene	1.054	0.944	0.992	1.016	1.046	1.027	1.031	1.016	3.70

Initial Calibration Summary

Job Number: JB37699

Sample: MSW580-ICC580

Account: ALNJ Accutest New Jersey

Lab FileID: W12593.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

139)	Hexachlorophene	0.056	0.012	0.027	0.064	0.055	0.060	0.046#	45.35	
---- Linear regression ---- Coefficient = 0.9950										
Response Ratio = -0.01565 + 0.06835 *A										
140)	3-Methylcholanthrene	0.667	0.560	0.601	0.638	0.676	0.657	0.672	0.639	6.80
141)	Dibenz(a,j)acridine	0.930	0.744	0.783	0.862	0.952	0.905	0.960	0.877	9.64
142)	Indeno[1,2,3-cd]pyrene	1.354	1.213	1.276	1.325	1.368	1.340	1.355	1.319	4.22
143)	Dibenz[a,h]anthracene	1.118	1.017	1.065	1.110	1.132	1.117	1.121	1.097	3.79
144)	Benzo[g,h,i]perylene	1.092	0.986	1.040	1.073	1.116	1.091	1.105	1.072	4.20
145)	1,4-Dichlorobenzene-d	-----ISTD-----								
146)	Benzaldehyde	3.728	3.970	4.015	4.354	4.077		4.029	5.58	
147)	Naphthalene-d8a	-----ISTD-----								
148)	Caprolactam	0.143	0.135	0.144	0.135	0.162		0.144	7.72	
149)	Acenaphthene-d10a	-----ISTD-----								
150)	1,1'-Biphenyl	1.427	1.368	1.401	1.389	1.420	1.393	1.400	1.54	
151)	Phenanthrene-d10a	-----ISTD-----								
152)	Atrazine	0.223	0.212	0.216	0.215	0.219	0.217	0.217	1.95	

(#) = Out of Range ### Number of calibration levels exceeded format ###

W130530_AP9+.m

Fri May 31 10:52:21 2013

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12604.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\W12604.D Vial: 8
 Acq On : 30 May 2013 9:05 pm Operator: kristinr
 Sample : icv580-20, Pyridine Inst : MSW
 Misc : OP33195,MSW581,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\methods\W130530_AP9+.m (RTE Integrator)
 Title : SW-846 Method 8270
 Last Update : Fri May 31 10:52:01 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	108	0.00	4.21
2	Methyl Methacrylate		-----NA-----				
3 T	N-Nitrosodimethylamine		-----NA-----				
4 T	Pyridine	0.941	1.038	-10.3	107	0.01	2.36
5 T	Ethyl Methacrylate		-----NA-----				
6 T	2-Picoline		-----NA-----				
7 T	n-Nitrosomethylethylamine		-----NA-----				
8 T	Methyl Methanesulfonate		-----NA-----				
9 T	n-Nitrosodiethylamine		-----NA-----				
10 T	Ethyl Methanesulfonate		-----NA-----				
11 T	Aniline		-----NA-----				
12 S	2-Fluorophenol		-----NA-----				
13 T	bis(2-Chloroethyl)ether		-----NA-----				
14 T	Pentachloroethane		-----NA-----				
15 S	Phenol-d5		-----NA-----				
16 C	Phenol		-----NA-----				
17 M	2-Chlorophenol		-----NA-----				
18 T	1,3-Dichlorobenzene		-----NA-----				
19 C	1,4-Dichlorobenzene		-----NA-----				
20 T	1,2-Dichlorobenzene		-----NA-----				
21 T	Benzyl alcohol		-----NA-----				
22 T	bis(2-chloroisopropyl)eth		-----NA-----				
23 T	o-cresol		-----NA-----				
24 T	Acetophenone		-----NA-----				
25 T	n-Nitrosopyrrolidine		-----NA-----				
26 T	n-Nitrosomorpholine		-----NA-----				
27 T	Hexachloroethane		-----NA-----				
28 P	N-Nitroso-di-n-propylamin		-----NA-----				
29 T	m+p-cresols		-----NA-----				
30	4-methylphenol		-----NA-----				
31 I	Naphthalene-d8	1.000	1.000	0.0	108	0.00	5.27
32 S	Nitrobenzene-d5		-----NA-----				
33 T	Nitrobenzene		-----NA-----				
34 T	n-Nitrosopiperidine		-----NA-----				
35 T	Isophorone		-----NA-----				
36 C	2-Nitrophenol		-----NA-----				
37 T	2,4-Dimethylphenol		-----NA-----				
38 T	bis(2-Chloroethoxy)methan		-----NA-----				
39 T	alpha, alpha-Dimethylphen		-----NA-----				
40 T	O,O,O-Triethyl phosphorot		-----NA-----				
41 T	Benzoic acid		-----NA-----				

9.7.6

9

Initial Calibration Verification

Page 2 of 4

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12604.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

42 C	2,4-Dichlorophenol		-----	-NA-----					
43 M	1,2,4-Trichlorobenzene		-----	-NA-----					
44 T	Naphthalene		-----	-NA-----					
45 T	2,6-Dichlorophenol		-----	-NA-----					
46 T	4-Chloroaniline		-----	-NA-----					
47 T	Hexachloropropene		-----	-NA-----					
48 C	Hexachlorobutadiene		-----	-NA-----					
49 T	n-Nitroso-di-n-butylamine		-----	-NA-----					
50 T	p-phenylenediamine		-----	-NA-----					
51 C	4-Chloro-3-methylphenol		-----	-NA-----					
52 T	Safrole		-----	-NA-----					
53 T	2-Methylnaphthalene		-----	-NA-----					
54	1-methylnaphthalene		-----	-NA-----					
55 I	Acenaphthene-d10	1.000	1.000	0.0	109	0.00	6.81		
56 P	Hexachlorocyclopentadiene		-----	-NA-----					
57 T	1,2,4,5-Tetrachlorobenzene		-----	-NA-----					
58 C	2,4,6-Trichlorophenol		-----	-NA-----					
59 T	2,4,5-Trichlorophenol		-----	-NA-----					
60 S	2-Fluorobiphenyl		-----	-NA-----					
61 T	2-Chloronaphthalene		-----	-NA-----					
62 T	1-Chloronaphthalene		-----	-NA-----					
63 T	Isosafrole		-----	-NA-----					
64 T	1,4-Naphthoquinone		-----	-NA-----					
65 M	Acenaphthylene		-----	-NA-----					
66 T	Dimethylphthalate		-----	-NA-----					
67 T	1,3-Dinitrobenzene		-----	-NA-----					
68 T	2,6-Dinitrotoluene		-----	-NA-----					
69 C	Acenaphthene		-----	-NA-----					
70 P	2,4-Dinitrophenol		-----	-NA-----					
71 T	Pentachlorobenzene		-----	-NA-----					
72 T	Dibenzofuran		-----	-NA-----					
73 M	2,4-Dinitrotoluene		-----	-NA-----					
74 P	4-Nitrophenol		-----	-NA-----					
75 T	o-toluidine		-----	-NA-----					
76 T	1-Naphthylamine		-----	-NA-----					
77 T	2,3,4,6-Tetrachlorophenol		-----	-NA-----					
78 T	2-Naphthylamine		-----	-NA-----					
79 T	Fluorene		-----	-NA-----					
80 T	4-Chlorophenyl-phenylethane		-----	-NA-----					
81 T	5-Nitro-o-toluidine		-----	-NA-----					
82 T	Diethylphthalate		-----	-NA-----					
83 T	2-nitroaniline		-----	-NA-----					
84 T	3-nitroaniline		-----	-NA-----					
85 T	4-nitroaniline		-----	-NA-----					
86 I	Phenanthrene-d10	1.000	1.000	0.0	115	-0.01	8.22		
87	tetraethyl dithiopyrophos		-----	-NA-----					
88 T	4,6-Dinitro-2-methylpheno		-----	-NA-----					
89 T	Thionazin		-----	-NA-----					
90 T	phorate		-----	-NA-----					
91 T	parathion		-----	-NA-----					
92 T	methyl parathion		-----	-NA-----					
93 T	Disulfoton		-----	-NA-----					
94 T	Dimethoate		-----	-NA-----					
95 T	Diallate		-----	-NA-----					
96 C	Diphenylamine		-----	-NA-----					
97 C	n-Nitrosodiphenylamine		-----	-NA-----					
98 T	1,2-Diphenylhydrazine		-----	-NA-----					
99 S	2,4,6-Tribromophenol		-----	-NA-----					

9.7.6
9

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12604.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

100 T	sym-Trinitrobenzene	-----	-NA-----								
101 T	Phenacetin	-----	-NA-----								
102 T	4-Bromophenyl-phenylether	-----	-NA-----								
103 T	Hexachlorobenzene	-----	-NA-----								
104 C	Pentachlorophenol	-----	-NA-----								
105 T	4-Aminobiphenyl	-----	-NA-----								
106 T	Pentachloronitrobenzene	-----	-NA-----								
107 T	Pronamide	-----	-NA-----								
108 T	2-sec-Butyl-4,6-Dinitroph	-----	-NA-----								
109 T	Phenanthrene	-----	-NA-----								
110 T	Anthracene	-----	-NA-----								
111 T	Carbazole	-----	-NA-----								
112 T	Di-n-butylphthalate	-----	-NA-----								
----- Amount -----											
113 T	4-Nitroquinoline-1-oxide	-----	-NA-----								
----- AvgRF -----											
114 T	Methapyrilene	-----	-NA-----								
115 T	Isodrin	-----	-NA-----								
116 C	Fluoranthene	-----	-NA-----								
117 I	Chrysene-d12	1.000	1.000	0.0	123	-0.01	11.20				
----- Amount -----											
118 T	kepone	-----	-NA-----								
119 T	Famphur	-----	-NA-----								
----- AvgRF -----											
120 T	Benzidine	-----	-NA-----								
121 M	Pyrene	-----	-NA-----								
122 S	Terphenyl-d14	-----	-NA-----								
123 T	Aramite	-----	-NA-----								
124 T	p-Dimethylaminoazobenzene	-----	-NA-----								
125 T	Chlorobenzilate	-----	-NA-----								
126 T	3,3'-Dimethylbenzidine	-----	-NA-----								
127 T	Butylbenzylphthalate	-----	-NA-----								
128 T	2-Acetylaminofluorene	-----	-NA-----								
129 T	3,3'-Dichlorobenzidine	-----	-NA-----								
130 T	Benzo[alanthracene	-----	-NA-----								
131 T	Chrysene	-----	-NA-----								
132 T	bis(2-Ethylhexyl)phthalat	-----	-NA-----								
133 I	Perylene-d12	1.000	1.000	0.0	120	-0.01	12.79				
134 C	Di-n-octylphthalate	-----	-NA-----								
135 T	7,12-Dimethylbenz(a)anthr	-----	-NA-----								
136 T	Benzo[b]fluoranthene	-----	-NA-----								
137 T	Benzo[k]fluoranthene	-----	-NA-----								
138 C	Benzo[a]pyrene	-----	-NA-----								
----- Amount -----											
139 T	Hexachlorophene	-----	-NA-----								
----- AvgRF -----											
140 T	3-Methylcholanthrene	-----	-NA-----								
141 T	Dibenz(a,j)acridine	-----	-NA-----								
142 T	Indeno[1,2,3-cd]pyrene	-----	-NA-----								
143 T	Dibenz[a,h]anthracene	-----	-NA-----								
144 T	Benzo[g,h,i]perylene	-----	-NA-----								

97.6

9

Initial Calibration Verification

Page 4 of 4

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12604.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

145	1,4-Dichlorobenzene-d4a	-----NA-----
146	Benzaldehyde	-----NA-----
147	Naphthalene-d8a	-----NA-----
148	Caprolactam	-----NA-----
149	Acenaphthene-d10a	-----NA-----
150	1,1'-Biphenyl	-----NA-----
151	Phenanthrene-d10a	-----NA-----
152	Atrazine	-----NA-----

(#) = Out of Range
W12596.D W130530_AP9+.m

SPCC's out = 4 CCC's out = 14
Fri May 31 11:03:34 2013

9.7.6
9

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12605.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\W12605.D Vial: 9
 Acq On : 30 May 2013 9:28 pm Operator: kristinr
 Sample : icv580-20, ANILINE Inst : MSW
 Misc : OP33195,MSW581,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\methods\W130530_AP9+.m (RTE Integrator)
 Title : SW-846 Method 8270
 Last Update : Fri May 31 09:44:02 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	115	0.00	4.21
2	Methyl Methacrylate		-----	NA	-----		
3 T	N-Nitrosodimethylamine		-----	NA	-----		
4 T	Pyridine		-----	NA	-----		
5 T	Ethyl Methacrylate		-----	NA	-----		
6 T	2-Picoline		-----	NA	-----		
7 T	n-Nitrosomethylethylamine		-----	NA	-----		
8 T	Methyl Methanesulfonate		-----	NA	-----		
9 T	n-Nitrosodiethylamine		-----	NA	-----		
10 T	Ethyl Methanesulfonate		-----	NA	-----		
11 T	Aniline	1.480	1.512	-2.2	106	0.00	3.98
12 S	2-Fluorophenol		-----	NA	-----		
13 T	bis(2-Chloroethyl)ether		-----	NA	-----		
14 T	Pentachloroethane		-----	NA	-----		
15 S	Phenol-d5		-----	NA	-----		
16 C	Phenol		-----	NA	-----		
17 M	2-Chlorophenol		-----	NA	-----		
18 T	1,3-Dichlorobenzene		-----	NA	-----		
19 C	1,4-Dichlorobenzene		-----	NA	-----		
20 T	1,2-Dichlorobenzene		-----	NA	-----		
21 T	Benzyl alcohol		-----	NA	-----		
22 T	bis(2-chloroisopropyl)eth		-----	NA	-----		
23 T	o-cresol		-----	NA	-----		
24 T	Acetophenone		-----	NA	-----		
25 T	n-Nitrosopyrrolidine		-----	NA	-----		
26 T	n-Nitrosomorpholine		-----	NA	-----		
27 T	Hexachloroethane		-----	NA	-----		
28 P	N-Nitroso-di-n-propylamin		-----	NA	-----		
29 T	m+p-cresols		-----	NA	-----		
30	4-methylphenol		-----	NA	-----		
31 I	Naphthalene-d8	1.000	1.000	0.0	113	0.00	5.27
32 S	Nitrobenzene-d5		-----	NA	-----		
33 T	Nitrobenzene		-----	NA	-----		
34 T	n-Nitrosopiperidine		-----	NA	-----		
35 T	Isophorone		-----	NA	-----		
36 C	2-Nitrophenol		-----	NA	-----		
37 T	2,4-Dimethylphenol		-----	NA	-----		
38 T	bis(2-Chloroethoxy)methan		-----	NA	-----		
39 T	alpha, alpha-Dimethylphen		-----	NA	-----		
40 T	O,O,O-Triethyl phosphorot		-----	NA	-----		
41 T	Benzoic acid		-----	NA	-----		

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12605.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

42 C	2,4-Dichlorophenol		-----	-NA-----					
43 M	1,2,4-Trichlorobenzene		-----	-NA-----					
44 T	Naphthalene		-----	-NA-----					
45 T	2,6-Dichlorophenol		-----	-NA-----					
46 T	4-Chloroaniline	0.370	0.408	-10.3	110	-0.01		5.34	
47 T	Hexachloropropene		-----	-NA-----					
48 C	Hexachlorobutadiene		-----	-NA-----					
49 T	n-Nitroso-di-n-butylamine		-----	-NA-----					
50 T	p-phenylenediamine		-----	-NA-----					
51 C	4-Chloro-3-methylphenol		-----	-NA-----					
52 T	Safrole		-----	-NA-----					
53 T	2-Methylnaphthalene		-----	-NA-----					
54	1-methylnaphthalene		-----	-NA-----					
55 I	Acenaphthene-d10	1.000	1.000	0.0	112	0.00		6.81	
56 P	Hexachlorocyclopentadiene		-----	-NA-----					
57 T	1,2,4,5-Tetrachlorobenzene		-----	-NA-----					
58 C	2,4,6-Trichlorophenol		-----	-NA-----					
59 T	2,4,5-Trichlorophenol		-----	-NA-----					
60 S	2-Fluorobiphenyl		-----	-NA-----					
61 T	2-Chloronaphthalene		-----	-NA-----					
62 T	1-Chloronaphthalene		-----	-NA-----					
63 T	Isosafrole		-----	-NA-----					
64 T	1,4-Naphthoquinone		-----	-NA-----					
65 M	Acenaphthylene		-----	-NA-----					
66 T	Dimethylphthalate		-----	-NA-----					
67 T	1,3-Dinitrobenzene		-----	-NA-----					
68 T	2,6-Dinitrotoluene		-----	-NA-----					
69 C	Acenaphthene		-----	-NA-----					
70 P	2,4-Dinitrophenol		-----	-NA-----					
71 T	Pentachlorobenzene		-----	-NA-----					
72 T	Dibenzofuran		-----	-NA-----					
73 M	2,4-Dinitrotoluene		-----	-NA-----					
74 P	4-Nitrophenol		-----	-NA-----					
75 T	o-toluidine		-----	-NA-----					
76 T	1-Naphthylamine		-----	-NA-----					
77 T	2,3,4,6-Tetrachlorophenol		-----	-NA-----					
78 T	2-Naphthylamine		-----	-NA-----					
79 T	Fluorene		-----	-NA-----					
80 T	4-Chlorophenyl-phenylethane		-----	-NA-----					
81 T	5-Nitro-o-toluidine		-----	-NA-----					
82 T	Diethylphthalate		-----	-NA-----					
83 T	2-nitroaniline		-----	-NA-----					
84 T	3-nitroaniline		-----	-NA-----					
85 T	4-nitroaniline		-----	-NA-----					
86 I	Phenanthrene-d10	1.000	1.000	0.0	114	-0.01		8.22	
87	tetraethyl dithiopyrophos		-----	-NA-----					
88 T	4,6-Dinitro-2-methylpheno		-----	-NA-----					
89 T	Thionazin		-----	-NA-----					
90 T	phorate		-----	-NA-----					
91 T	parathion		-----	-NA-----					
92 T	methyl parathion		-----	-NA-----					
93 T	Disulfoton		-----	-NA-----					
94 T	Dimethoate		-----	-NA-----					
95 T	Diallate		-----	-NA-----					
96 C	Diphenylamine		-----	-NA-----					
97 C	n-Nitrosodiphenylamine		-----	-NA-----					
98 T	1,2-Diphenylhydrazine		-----	-NA-----					
99 S	2,4,6-Tribromophenol		-----	-NA-----					

9.7.7
9

Initial Calibration Verification

Page 3 of 4

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12605.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

100 T	sym-Trinitrobenzene	-----	NA	-----				
101 T	Phenacetin	-----	NA	-----				
102 T	4-Bromophenyl-phenylether	-----	NA	-----				
103 T	Hexachlorobenzene	-----	NA	-----				
104 C	Pentachlorophenol	-----	NA	-----				
105 T	4-Aminobiphenyl	-----	NA	-----				
106 T	Pentachloronitrobenzene	-----	NA	-----				
107 T	Pronamide	-----	NA	-----				
108 T	2-sec-Butyl-4,6-Dinitroph	-----	NA	-----				
109 T	Phenanthrene	-----	NA	-----				
110 T	Anthracene	-----	NA	-----				
111 T	Carbazole	-----	NA	-----				
112 T	Di-n-butylphthalate	-----	NA	-----				
----- Amount Calc. %Drift -----								
113 T	4-Nitroquinoline-1-oxide	-----	NA	-----				
----- AvgRF CCRF %Dev -----								
114 T	Methapyrilene	-----	NA	-----				
115 T	Isodrin	-----	NA	-----				
116 C	Fluoranthene	-----	NA	-----				
117 I	Chrysene-d12	1.000	1.000	0.0	122	-0.01	11.20	
----- Amount Calc. %Drift -----								
118 T	kepone	-----	NA	-----				
119 T	Famphur	-----	NA	-----				
----- AvgRF CCRF %Dev -----								
120 T	Benzidine	0.423	0.471	-11.3	138	-0.01	9.69	
121 M	Pyrene	-----	NA	-----				
122 S	Terphenyl-d14	-----	NA	-----				
123 T	Aramite	-----	NA	-----				
124 T	p-Dimethylaminoazobenzene	-----	NA	-----				
125 T	Chlorobenzilate	-----	NA	-----				
126 T	3,3'-Dimethylbenzidine	-----	NA	-----				
127 T	Butylbenzylphthalate	-----	NA	-----				
128 T	2-Acetylaminofluorene	-----	NA	-----				
129 T	3,3'-Dichlorobenzidine	0.350	0.406	-16.0	120	-0.01	11.17	
130 T	Benzo[alanthracene	-----	NA	-----				
131 T	Chrysene	-----	NA	-----				
132 T	bis(2-Ethylhexyl)phthalat	-----	NA	-----				
133 I	Perylene-d12	1.000	1.000	0.0	122	-0.01	12.79	
134 C	Di-n-octylphthalate	-----	NA	-----				
135 T	7,12-Dimethylbenz(a)anthr	-----	NA	-----				
136 T	Benzo[b]fluoranthene	-----	NA	-----				
137 T	Benzo[k]fluoranthene	-----	NA	-----				
138 C	Benzo[a]pyrene	-----	NA	-----				
----- Amount Calc. %Drift -----								
139 T	Hexachlorophene	-----	NA	-----				
----- AvgRF CCRF %Dev -----								
140 T	3-Methylcholanthrene	-----	NA	-----				
141 T	Dibenz(a,j)acridine	-----	NA	-----				
142 T	Indeno[1,2,3-cd]pyrene	-----	NA	-----				
143 T	Dibenz[a,h]anthracene	-----	NA	-----				
144 T	Benzo[g,h,i]perylene	-----	NA	-----				

9.7.7
9

Initial Calibration Verification

Page 4 of 4

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12605.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

145	1,4-Dichlorobenzene-d4a	-----NA-----
146	Benzaldehyde	-----NA-----
147	Naphthalene-d8a	-----NA-----
148	Caprolactam	-----NA-----
149	Acenaphthene-d10a	-----NA-----
150	1,1'-Biphenyl	-----NA-----
151	Phenanthrene-d10a	-----NA-----
152	Atrazine	-----NA-----

(#) = Out of Range
W12596.D W130530_AP9+.m

SPCC's out = 4 CCC's out = 14
Fri May 31 10:37:14 2013

9.7.7

9

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12606.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\W12606.D Vial: 10
 Acq On : 30 May 2013 9:51 pm Operator: kristinr
 Sample : icv580-50, ACID Inst : MSW
 Misc : OP33195,MSW581,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\methods\W130530_AP9+.m (RTE Integrator)
 Title : SW-846 Method 8270
 Last Update : Fri May 31 09:44:02 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	4.21
2	Methyl Methacrylate		-----NA-----				
3 T	N-Nitrosodimethylamine		-----NA-----				
4 T	Pyridine		-----NA-----				
5 T	Ethyl Methacrylate		-----NA-----				
6 T	2-Picoline		-----NA-----				
7 T	n-Nitrosomethylethylamine		-----NA-----				
8 T	Methyl Methanesulfonate		-----NA-----				
9 T	n-Nitrosodiethylamine		-----NA-----				
10 T	Ethyl Methanesulfonate		-----NA-----				
11 T	Aniline		-----NA-----				
12 S	2-Fluorophenol	1.026	1.078	-5.1	108	0.00	3.26
13 T	bis(2-Chloroethyl)ether		-----NA-----				
14 T	Pentachloroethane		-----NA-----				
15 S	Phenol-d5	1.244	1.236	0.6	104	0.00	3.94
16 C	Phenol	1.145	1.358	-18.6	107	0.00	3.96
17 M	2-Chlorophenol	1.077	1.278	-18.7	107	0.00	4.07
18 T	1,3-Dichlorobenzene		-----NA-----				
19 C	1,4-Dichlorobenzene		-----NA-----				
20 T	1,2-Dichlorobenzene		-----NA-----				
21 T	Benzyl alcohol		-----NA-----				
22 T	bis(2-chloroisopropyl)eth		-----NA-----				
23 T	o-cresol	0.920	1.079	-17.3	107	-0.01	4.43
24 T	Acetophenone		-----NA-----				
25 T	n-Nitrosopyrrolidine		-----NA-----				
26 T	n-Nitrosomorpholine		-----NA-----				
27 T	Hexachloroethane		-----NA-----				
28 P	N-Nitroso-di-n-propylamin		-----NA-----				
29 T	m+p-cresols	0.980	1.159	-18.3	106	0.00	4.55
30	4-methylphenol	0.980	1.159	-18.3	106	0.00	4.55
31 I	Naphthalene-d8	1.000	1.000	0.0	103	0.00	5.27
32 S	Nitrobenzene-d5	0.285	0.278	2.4	100	-0.01	4.68
33 T	Nitrobenzene		-----NA-----				
34 T	n-Nitrosopiperidine		-----NA-----				
35 T	Isophorone		-----NA-----				
36 C	2-Nitrophenol	0.188	0.197	-4.8	104	0.00	4.96
37 T	2,4-Dimethylphenol	0.279	0.328	-17.6	105	0.00	4.99
38 T	bis(2-Chloroethoxy)methan		-----NA-----				
39 T	alpha, alpha-Dimethylphen		-----NA-----				
40 T	O,O,O-Triethyl phosphorot		-----NA-----				
41 T	Benzoic acid	0.190	0.284	-49.5#	123	0.00	5.08

9.7.8

6

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12606.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

42 C	2,4-Dichlorophenol	0.290	0.348	-20.0	107	0.00	5.16
43 M	1,2,4-Trichlorobenzene		-----	NA			
44 T	Naphthalene		-----	NA			
45 T	2,6-Dichlorophenol	0.288	0.345	-19.8	108	0.00	5.35
46 T	4-Chloroaniline		-----	NA			
47 T	Hexachloropropene		-----	NA			
48 C	Hexachlorobutadiene		-----	NA			
49 T	n-Nitroso-di-n-butylamine		-----	NA			
50 T	p-phenylenediamine		-----	NA			
51 C	4-Chloro-3-methylphenol	0.248	0.295	-19.0	103	0.00	5.76
52 T	Safrole		-----	NA			
53 T	2-Methylnaphthalene		-----	NA			
54	1-methylnaphthalene		-----	NA			
55 I	Acenaphthene-d10	1.000	1.000	0.0	103	0.00	6.81
56 P	Hexachlorocyclopentadiene		-----	NA			
57 T	1,2,4,5-Tetrachlorobenzene		-----	NA			
58 C	2,4,6-Trichlorophenol	0.361	0.433	-19.9	107	0.00	6.15
59 T	2,4,5-Trichlorophenol	0.393	0.458	-16.5	104	0.00	6.18
60 S	2-Fluorobiphenyl	1.270	1.298	-2.2	106	0.00	6.21
61 T	2-Chloronaphthalene		-----	NA			
62 T	1-Chloronaphthalene		-----	NA			
63 T	Isosafrole		-----	NA			
64 T	1,4-Naphthoquinone		-----	NA			
65 M	Acenaphthylene		-----	NA			
66 T	Dimethylphthalate		-----	NA			
67 T	1,3-Dinitrobenzene		-----	NA			
68 T	2,6-Dinitrotoluene		-----	NA			
69 C	Acenaphthene		-----	NA			
70 P	2,4-Dinitrophenol	0.191	0.200	-4.7	89	-0.01	6.87
71 T	Pentachlorobenzene		-----	NA			
72 T	Dibenzofuran		-----	NA			
73 M	2,4-Dinitrotoluene		-----	NA			
74 P	4-Nitrophenol	0.148	0.179	-20.9#	104	-0.01	6.93
75 T	o-toluidine		-----	NA			
76 T	1-Naphthylamine		-----	NA			
77 T	2,3,4,6-Tetrachlorophenol		-----	NA			
78 T	2-Naphthylamine		-----	NA			
79 T	Fluorene		-----	NA			
80 T	4-Chlorophenyl-phenylethane		-----	NA			
81 T	5-Nitro-o-toluidine		-----	NA			
82 T	Diethylphthalate		-----	NA			
83 T	2-nitroaniline		-----	NA			
84 T	3-nitroaniline		-----	NA			
85 T	4-nitroaniline		-----	NA			
86 I	Phenanthrene-d10	1.000	1.000	0.0	108	-0.01	8.22
87	tetraethyl dithiopyrophos		-----	NA			
88 T	4,6-Dinitro-2-methylpheno	0.154	0.164	-6.5	111	-0.01	7.39
89 T	Thionazin		-----	NA			
90 T	phorate		-----	NA			
91 T	parathion		-----	NA			
92 T	methyl parathion		-----	NA			
93 T	Disulfoton		-----	NA			
94 T	Dimethoate		-----	NA			
95 T	Diallate		-----	NA			
96 C	Diphenylamine		-----	NA			
97 C	n-Nitrosodiphenylamine		-----	NA			
98 T	1,2-Diphenylhydrazine		-----	NA			
99 S	2,4,6-Tribromophenol	0.159	0.158	0.6	104	0.00	7.55

Initial Calibration Verification

Page 3 of 4

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12606.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

100 T	sym-Trinitrobenzene		-----	NA	-----			
101 T	Phenacetin		-----	NA	-----			
102 T	4-Bromophenyl-phenylether		-----	NA	-----			
103 T	Hexachlorobenzene		-----	NA	-----			
104 C	Pentachlorophenol	0.215	0.231	-7.4	112	-0.01	8.09	
105 T	4-Aminobiphenyl		-----	NA	-----			
106 T	Pentachloronitrobenzene		-----	NA	-----			
107 T	Pronamide		-----	NA	-----			
108 T	2-sec-Butyl-4,6-Dinitroph		-----	NA	-----			
109 T	Phenanthrene		-----	NA	-----			
110 T	Anthracene		-----	NA	-----			
111 T	Carbazole		-----	NA	-----			
112 T	Di-n-butylphthalate		-----	NA	-----			
----- Amount Calc. %Drift -----								
113 T	4-Nitroquinoline-1-oxide		-----	NA	-----			
----- AvgRF CCRF %Dev -----								
114 T	Methapyrilene		-----	NA	-----			
115 T	Isodrin		-----	NA	-----			
116 C	Fluoranthene		-----	NA	-----			
117 I	Chrysene-d12	1.000	1.000	0.0	113	-0.01	11.20	
----- Amount Calc. %Drift -----								
118 T	kepone		-----	NA	-----			
119 T	Famphur		-----	NA	-----			
----- AvgRF CCRF %Dev -----								
120 T	Benzidine		-----	NA	-----			
121 M	Pyrene		-----	NA	-----			
122 S	Terphenyl-d14	0.847	0.414	51.1#	55	-0.01	9.98	
123 T	Aramite		-----	NA	-----			
124 T	p-Dimethylaminoazobenzene		-----	NA	-----			
125 T	Chlorobenzilate		-----	NA	-----			
126 T	3,3'-Dimethylbenzidine		-----	NA	-----			
127 T	Butylbenzylphthalate		-----	NA	-----			
128 T	2-Acetylaminofluorene		-----	NA	-----			
129 T	3,3'-Dichlorobenzidine		-----	NA	-----			
130 T	Benzo[alanthracene		-----	NA	-----			
131 T	Chrysene		-----	NA	-----			
132 T	bis(2-Ethylhexyl)phthalat		-----	NA	-----			
133 I	Perylene-d12	1.000	1.000	0.0	117	-0.01	12.79	
134 C	Di-n-octylphthalate		-----	NA	-----			
135 T	7,12-Dimethylbenz(a)anthr		-----	NA	-----			
136 T	Benzo[b]fluoranthene		-----	NA	-----			
137 T	Benzo[k]fluoranthene		-----	NA	-----			
138 C	Benzo[a]pyrene		-----	NA	-----			
----- Amount Calc. %Drift -----								
139 T	Hexachlorophene		-----	NA	-----			
----- AvgRF CCRF %Dev -----								
140 T	3-Methylcholanthrene		-----	NA	-----			
141 T	Dibenz(a,j)acridine		-----	NA	-----			
142 T	Indeno[1,2,3-cd]pyrene		-----	NA	-----			
143 T	Dibenz[a,h]anthracene		-----	NA	-----			
144 T	Benzo[g,h,i]perylene		-----	NA	-----			

9.7.8

6

Initial Calibration Verification

Page 4 of 4

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12606.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

145	1,4-Dichlorobenzene-d4a	-----NA-----
146	Benzaldehyde	-----NA-----
147	Naphthalene-d8a	-----NA-----
148	Caprolactam	-----NA-----
149	Acenaphthene-d10a	-----NA-----
150	1,1'-Biphenyl	-----NA-----
151	Phenanthrene-d10a	-----NA-----
152	Atrazine	-----NA-----

(#) = Out of Range
W12593.D W130530_AP9+.m

SPCC's out = 2 CCC's out = 8
Fri May 31 10:42:57 2013

9.7.8
9

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12607.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\W12607.D Vial: 11
 Acq On : 30 May 2013 10:14 pm Operator: kristinr
 Sample : icv580-50, AP9 Inst : MSW
 Misc : OP33195,MSW581,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\methods\W130530_AP9+.m (RTE Integrator)
 Title : SW-846 Method 8270
 Last Update : Fri May 31 10:52:01 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	4.21
2	Methyl Methacrylate		-----	NA	-----		
3 T	N-Nitrosodimethylamine		-----	NA	-----		
4 T	Pyridine		-----	NA	-----		
5 T	Ethyl Methacrylate		-----	NA	-----		
6 T	2-Picoline		-----	NA	-----		
7 T	n-Nitrosomethylethylamine		-----	NA	-----		
8 T	Methyl Methanesulfonate		-----	NA	-----		
9 T	n-Nitrosodiethylamine		-----	NA	-----		
10 T	Ethyl Methanesulfonate		-----	NA	-----		
11 T	Aniline		-----	NA	-----		
12 S	2-Fluorophenol		-----	NA	-----		
13 T	bis(2-Chloroethyl)ether		-----	NA	-----		
14 T	Pentachloroethane		-----	NA	-----		
15 S	Phenol-d5		-----	NA	-----		
16 C	Phenol		-----	NA	-----		
17 M	2-Chlorophenol		-----	NA	-----		
18 T	1,3-Dichlorobenzene		-----	NA	-----		
19 C	1,4-Dichlorobenzene		-----	NA	-----		
20 T	1,2-Dichlorobenzene		-----	NA	-----		
21 T	Benzyl alcohol		-----	NA	-----		
22 T	bis(2-chloroisopropyl)eth		-----	NA	-----		
23 T	o-cresol		-----	NA	-----		
24 T	Acetophenone		-----	NA	-----		
25 T	n-Nitrosopyrrolidine		-----	NA	-----		
26 T	n-Nitrosomorpholine		-----	NA	-----		
27 T	Hexachloroethane		-----	NA	-----		
28 P	N-Nitroso-di-n-propylamin		-----	NA	-----		
29 T	m+p-cresols		-----	NA	-----		
30	4-methylphenol		-----	NA	-----		
31 I	Naphthalene-d8	1.000	1.000	0.0	97	0.00	5.27
32 S	Nitrobenzene-d5		-----	NA	-----		
33 T	Nitrobenzene		-----	NA	-----		
34 T	n-Nitrosopiperidine		-----	NA	-----		
35 T	Isophorone		-----	NA	-----		
36 C	2-Nitrophenol		-----	NA	-----		
37 T	2,4-Dimethylphenol		-----	NA	-----		
38 T	bis(2-Chloroethoxy)methan		-----	NA	-----		
39 T	alpha, alpha-Dimethylphen		-----	NA	-----		
40 T	O,O,O-Triethyl phosphorot		-----	NA	-----		
41 T	Benzoic acid		-----	NA	-----		

Initial Calibration Verification

Page 2 of 4

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12607.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

42 C	2,4-Dichlorophenol		-----	-NA-----					
43 M	1,2,4-Trichlorobenzene		-----	-NA-----					
44 T	Naphthalene		-----	-NA-----					
45 T	2,6-Dichlorophenol		-----	-NA-----					
46 T	4-Chloroaniline		-----	-NA-----					
47 T	Hexachloropropene		-----	-NA-----					
48 C	Hexachlorobutadiene		-----	-NA-----					
49 T	n-Nitroso-di-n-butylamine		-----	-NA-----					
50 T	p-phenylenediamine		-----	-NA-----					
51 C	4-Chloro-3-methylphenol		-----	-NA-----					
52 T	Safrole		-----	-NA-----					
53 T	2-Methylnaphthalene		-----	-NA-----					
54	1-methylnaphthalene		-----	-NA-----					
55 I	Acenaphthene-d10	1.000	1.000	0.0	98	0.00	6.81		
56 P	Hexachlorocyclopentadiene		-----	-NA-----					
57 T	1,2,4,5-Tetrachlorobenzene		-----	-NA-----					
58 C	2,4,6-Trichlorophenol		-----	-NA-----					
59 T	2,4,5-Trichlorophenol		-----	-NA-----					
60 S	2-Fluorobiphenyl		-----	-NA-----					
61 T	2-Chloronaphthalene		-----	-NA-----					
62 T	1-Chloronaphthalene		-----	-NA-----					
63 T	Isosafrole		-----	-NA-----					
64 T	1,4-Naphthoquinone		-----	-NA-----					
65 M	Acenaphthylene		-----	-NA-----					
66 T	Dimethylphthalate		-----	-NA-----					
67 T	1,3-Dinitrobenzene		-----	-NA-----					
68 T	2,6-Dinitrotoluene		-----	-NA-----					
69 C	Acenaphthene		-----	-NA-----					
70 P	2,4-Dinitrophenol		-----	-NA-----					
71 T	Pentachlorobenzene		-----	-NA-----					
72 T	Dibenzofuran		-----	-NA-----					
73 M	2,4-Dinitrotoluene		-----	-NA-----					
74 P	4-Nitrophenol		-----	-NA-----					
75 T	o-toluidine		-----	-NA-----					
76 T	1-Naphthylamine		-----	-NA-----					
77 T	2,3,4,6-Tetrachlorophenol		-----	-NA-----					
78 T	2-Naphthylamine		-----	-NA-----					
79 T	Fluorene		-----	-NA-----					
80 T	4-Chlorophenyl-phenylethane		-----	-NA-----					
81 T	5-Nitro-o-toluidine		-----	-NA-----					
82 T	Diethylphthalate		-----	-NA-----					
83 T	2-nitroaniline		-----	-NA-----					
84 T	3-nitroaniline		-----	-NA-----					
85 T	4-nitroaniline		-----	-NA-----					
86 I	Phenanthrene-d10	1.000	1.000	0.0	103	0.00	8.22		
87	tetraethyl dithiopyrophos		-----	-NA-----					
88 T	4,6-Dinitro-2-methylpheno		-----	-NA-----					
89 T	Thionazin		-----	-NA-----					
90 T	phorate		-----	-NA-----					
91 T	parathion		-----	-NA-----					
92 T	methyl parathion		-----	-NA-----					
93 T	Disulfoton		-----	-NA-----					
94 T	Dimethoate		-----	-NA-----					
95 T	Diallate		-----	-NA-----					
96 C	Diphenylamine		-----	-NA-----					
97 C	n-Nitrosodiphenylamine		-----	-NA-----					
98 T	1,2-Diphenylhydrazine		-----	-NA-----					
99 S	2,4,6-Tribromophenol		-----	-NA-----					

9.7.9
9

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12607.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

100 T	sym-Trinitrobenzene	-----	-NA-----								
101 T	Phenacetin	-----	-NA-----								
102 T	4-Bromophenyl-phenylether	-----	-NA-----								
103 T	Hexachlorobenzene	-----	-NA-----								
104 C	Pentachlorophenol	-----	-NA-----								
105 T	4-Aminobiphenyl	-----	-NA-----								
106 T	Pentachloronitrobenzene	-----	-NA-----								
107 T	Pronamide	-----	-NA-----								
108 T	2-sec-Butyl-4,6-Dinitroph	-----	-NA-----								
109 T	Phenanthrene	-----	-NA-----								
110 T	Anthracene	-----	-NA-----								
111 T	Carbazole	-----	-NA-----								
112 T	Di-n-butylphthalate	-----	-NA-----								
----- Amount Calc. %Drift -----											
113 T	4-Nitroquinoline-1-oxide	-----	-NA-----								
----- AvgRF CCRF %Dev -----											
114 T	Methapyrilene	-----	-NA-----								
115 T	Isodrin	-----	-NA-----								
116 C	Fluoranthene	-----	-NA-----								
117 I	Chrysene-d12	1.000	1.000	0.0	110	-0.01	11.20				
----- Amount Calc. %Drift -----											
118 T	kepone	-----	-NA-----								
119 T	Famphur	-----	-NA-----								
----- AvgRF CCRF %Dev -----											
120 T	Benzidine	-----	-NA-----								
121 M	Pyrene	-----	-NA-----								
122 S	Terphenyl-d14	-----	-NA-----								
123 T	Aramite	-----	-NA-----								
124 T	p-Dimethylaminoazobenzene	-----	-NA-----								
125 T	Chlorobenzilate	-----	-NA-----								
126 T	3,3'-Dimethylbenzidine	-----	-NA-----								
127 T	Butylbenzylphthalate	-----	-NA-----								
128 T	2-Acetylaminofluorene	-----	-NA-----								
129 T	3,3'-Dichlorobenzidine	-----	-NA-----								
130 T	Benzo[alanthracene	-----	-NA-----								
131 T	Chrysene	-----	-NA-----								
132 T	bis(2-Ethylhexyl)phthalat	-----	-NA-----								
133 I	Perylene-d12	1.000	1.000	0.0	112	0.00	12.80				
134 C	Di-n-octylphthalate	-----	-NA-----								
135 T	7,12-Dimethylbenz(a)anthr	-----	-NA-----								
136 T	Benzo[b]fluoranthene	-----	-NA-----								
137 T	Benzo[k]fluoranthene	-----	-NA-----								
138 C	Benzo[a]pyrene	-----	-NA-----								
----- Amount Calc. %Drift -----											
139 T	Hexachlorophene	50.000	46.115	7.8	102	0.00	12.62				
----- AvgRF CCRF %Dev -----											
140 T	3-Methylcholanthrene	-----	-NA-----								
141 T	Dibenz(a,j)acridine	-----	-NA-----								
142 T	Indeno[1,2,3-cd]pyrene	-----	-NA-----								
143 T	Dibenz[a,h]anthracene	-----	-NA-----								
144 T	Benzo[g,h,i]perylene	-----	-NA-----								

Initial Calibration Verification

Page 4 of 4

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12607.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

145	1,4-Dichlorobenzene-d4a	-----NA-----
146	Benzaldehyde	-----NA-----
147	Naphthalene-d8a	-----NA-----
148	Caprolactam	-----NA-----
149	Acenaphthene-d10a	-----NA-----
150	1,1'-Biphenyl	-----NA-----
151	Phenanthrene-d10a	-----NA-----
152	Atrazine	-----NA-----

(#) = Out of Range
W12593.D W130530_AP9+.m

SPCC's out = 4 CCC's out = 14
Fri May 31 11:05:48 2013

9.7.9

9

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12610.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\W12610.D Vial: 13
 Acq On : 30 May 2013 11:24 pm Operator: kristinr
 Sample : icv580-50 Inst : MSW
 Misc : OP33380,MSW581,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\methods\W130530_AP9+.m (RTE Integrator)
 Title : SW-846 Method 8270
 Last Update : Fri May 31 10:52:01 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I 1,4-Dichlorobenzene-d4	1.000	1.000	0.0	99	0.00	4.21
2	Methyl Methacrylate	0.489	0.302	38.2#	51	0.02	2.15
3	T N-Nitrosodimethylamine	0.496	0.447	9.9	75	0.02	2.36
4	T Pyridine			-----NA-----			
5	T Ethyl Methacrylate	0.679	0.546	19.6	68	0.01	2.64
6	T 2-Picoline	1.047	0.888	15.2	72	0.01	2.85
7	T n-Nitrosomethylethylamine	0.408	0.395	3.2	82	0.00	2.95
8	T Methyl Methanesulfonate			-----NA-----			
9	T n-Nitrosodiethylamine	0.463	0.454	1.9	82	0.00	3.44
10	T Ethyl Methanesulfonate			-----NA-----			
11	T Aniline			-----NA-----			
12	S 2-Fluorophenol			-----NA-----			
13	T bis(2-Chloroethyl)ether	0.879	0.803	8.6	77	0.00	4.02
14	T Pentachloroethane	0.352	0.342	2.8	84	0.00	3.99
15	S Phenol-d5			-----NA-----			
16	C Phenol			-----NA-----			
17	M 2-Chlorophenol			-----NA-----			
18	T 1,3-Dichlorobenzene	1.230	1.110	9.8	77	0.00	4.19
19	C 1,4-Dichlorobenzene	1.295	1.185	8.5	78	0.00	4.23
20	T 1,2-Dichlorobenzene	1.185	1.106	6.7	80	0.00	4.38
21	T Benzyl alcohol	0.666	0.611	8.3	77	0.00	4.33
22	T bis(2-chloroisopropyl)eth	0.699	0.763	-9.2	92	0.00	4.46
23	T o-cresol			-----NA-----			
24	T Acetophenone	1.425	1.353	5.1	81	0.00	4.56
25	T n-Nitrosopyrrolidine	0.486	0.504	-3.7	85	0.00	4.56
26	T n-Nitrosomorpholine	0.502	0.498	0.8	84	0.00	4.56
27	T Hexachloroethane	0.405	0.367	9.4	77	0.00	4.63
28	P N-Nitroso-di-n-propylamin	0.616	0.601	2.4	81	0.00	4.58
29	T m+p-cresols			-----NA-----			
30	T 4-methylphenol			-----NA-----			
31	I Naphthalene-d8	1.000	1.000	0.0	97	0.00	5.27
32	S Nitrobenzene-d5			-----NA-----			
33	T Nitrobenzene	0.262	0.233	11.1	75	0.00	4.70
34	T n-Nitrosopiperidine	0.138	0.138	0.0	84	0.00	4.82
35	T Isophorone	0.453	0.421	7.1	79	0.00	4.89
36	C 2-Nitrophenol			-----NA-----			
37	T 2,4-Dimethylphenol			-----NA-----			
38	T bis(2-Chloroethoxy)methan	0.376	0.373	0.8	84	0.00	5.07
39	T alpha, alpha-Dimethylphen	0.030	0.044#	-46.7#	133	-0.03	7.92
40	T O,O,O-Triethyl phosphorot	0.131	0.136	-3.8	89	0.00	5.08
41	T Benzoic acid			-----NA-----			

9710
6

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12610.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

42 C	2,4-Dichlorophenol		-----NA-----				
43 M	1,2,4-Trichlorobenzene	0.318	0.310	2.5	83	0.00	5.24
44 T	Naphthalene	0.853	0.833	2.3	83	0.00	5.29
45 T	2,6-Dichlorophenol		-----NA-----				
46 T	4-Chloroaniline	0.370	0.324	12.4	74	0.00	5.35
47 T	Hexachloropropene	0.231	0.237	-2.6	86	0.00	5.39
48 C	Hexachlorobutadiene	0.208	0.205	1.4	84	0.00	5.45
49 T	n-Nitroso-di-n-butylamine	0.174	0.176	-1.1	85	0.00	5.65
50 T	p-phenylenediamine	0.195	0.190	2.6	83	0.01	5.66
51 C	4-Chloro-3-methylphenol		-----NA-----				
52 T	Safrole	0.277	0.290	-4.7	89	0.00	5.81
53 T	2-Methylnaphthalene	0.641	0.580	9.5	76	0.00	5.88
54	1-methylnaphthalene	0.607	0.569	6.3	80	0.00	5.97
55 I	Acenaphthene-d10	1.000	1.000	0.0	98	0.00	6.81
56 P	Hexachlorocyclopentadiene	0.174	0.091	47.7#	49#	0.00	6.08
57 T	1,2,4,5-Tetrachlorobenzene	0.569	0.537	5.6	82	0.00	6.07
58 C	2,4,6-Trichlorophenol		-----NA-----				
59 T	2,4,5-Trichlorophenol		-----NA-----				
60 S	2-Fluorobiphenyl		-----NA-----				
61 T	2-Chloronaphthalene	1.014	1.025	-1.1	88	0.00	6.31
62 T	1-Chloronaphthalene	0.825	0.829	-0.5	87	0.00	6.34
63 T	Isosafrole	0.370	0.389	-5.1	90	0.00	6.26
64 T	1,4-Naphthoquinone	0.386	0.397	-2.8	92	0.00	6.46
65 M	Acenaphthylene	1.498	1.524	-1.7	88	0.00	6.67
66 T	Dimethylphthalate	1.114	1.135	-1.9	88	0.00	6.61
67 T	1,3-Dinitrobenzene	0.204	0.212	-3.9	97	0.00	6.62
68 T	2,6-Dinitrotoluene	0.255	0.264	-3.5	87	0.00	6.66
69 C	Acenaphthene	0.923	0.934	-1.2	88	0.00	6.84
70 P	2,4-Dinitrophenol		-----NA-----				
71 T	Pentachlorobenzene	0.601	0.619	-3.0	89	0.00	7.01
72 T	Dibenzofuran	1.437	1.360	5.4	83	0.00	6.98
73 M	2,4-Dinitrotoluene	0.329	0.379	-15.2	97	0.00	7.02
74 P	4-Nitrophenol		-----NA-----				
75 T	o-toluidine	0.589	0.551	6.5	81	0.00	4.60
76 T	1-Naphthylamine	0.478	0.518	-8.4	93	0.00	7.06
77 T	2,3,4,6-Tetrachlorophenol	0.444	0.427	3.8	94	0.00	7.14
78 T	2-Naphthylamine	1.021	0.898	12.0	75	0.00	7.13
79 T	Fluorene	1.112	1.190	-7.0	92	0.00	7.30
80 T	4-Chlorophenyl-phenylethane	0.641	0.661	-3.1	90	0.00	7.30
81 T	5-Nitro-o-toluidine	0.312	0.322	-3.2	86	0.00	7.34
82 T	Diethylphthalate	1.151	1.104	4.1	95	0.00	7.25
83 T	2-nitroaniline	0.273	0.286	-4.8	85	0.00	6.42
84 T	3-nitroaniline	0.243	0.246	-1.2	84	0.00	6.79
85 T	4-nitroaniline	0.250	0.251	-0.4	84	0.00	7.36
86 I	Phenanthrene-d10	1.000	1.000	0.0	103	0.00	8.22
87	tetraethyl dithiopyrophos	0.130	0.166	-27.7#	110	0.00	7.67
88 T	4,6-Dinitro-2-methylphenol		-----NA-----				
89 T	Thionazin	0.070	0.081	-15.7	101	0.00	7.33
90 T	phorate	0.202	0.242	-19.8	96	0.00	7.74
91 T	parathion	0.102	0.112	-9.8	107	0.00	9.09
92 T	methyl parathion	0.171	0.184	-7.6	101	0.00	8.66
93 T	Disulfoton	0.186	0.235	-26.3#	103	0.00	8.27
94 T	Dimethoate	0.160	0.176	-10.0	105	0.00	7.92
95 T	Diallate	0.157	0.171	-8.9	96	0.00	7.73
96 C	Diphenylamine	0.958	0.984	-2.7	91	0.00	7.42
97 C	n-Nitrosodiphenylamine	0.479	0.492	-2.7	91	0.00	7.42
98 T	1,2-Diphenylhydrazine	0.377	0.365	3.2	85	0.00	7.45
99 S	2,4,6-Tribromophenol		-----NA-----				

9.7.10
6

Initial Calibration Verification

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12610.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

100 T	sym-Trinitrobenzene	0.100	0.118	-18.0	96	0.00	7.72
101 T	Phenacetin	0.240	0.271	-12.9	98	0.00	7.75
102 T	4-Bromophenyl-phenylether	0.233	0.235	-0.9	90	0.00	7.77
103 T	Hexachlorobenzene	0.254	0.273	-7.5	97	0.00	7.92
104 C	Pentachlorophenol			-----NA-----			
105 T	4-Aminobiphenyl	0.958	0.984	-2.7	91	0.00	7.42
106 T	Pentachloronitrobenzene	0.081	0.086	-6.2	94	0.00	8.18
107 T	Pronamide	0.271	0.315	-16.2	100	0.00	8.14
108 T	2-sec-Butyl-4,6-Dinitroph	0.726	0.489	32.6#	67	0.00	8.29
109 T	Phenanthrene	0.889	0.951	-7.0	96	0.00	8.25
110 T	Anthracene	0.942	0.967	-2.7	92	0.00	8.29
111 T	Carbazole	0.821	0.846	-3.0	91	0.00	8.46
112 T	Di-n-butylphthalate	0.925	0.988	-6.8	93	0.00	8.90
-----Amount-----				Calc.	%Drift	-----	
113 T	4-Nitroquinoline-1-oxide	50.000	53.070	-6.1	108	-0.01	9.09
-----AvgRF-----				CCRF	%Dev	-----	
114 T	Methapyrilene	0.153	0.175	-14.4	113	-0.01	9.22
115 T	Isodrin	0.104	0.119	-14.4	102	0.00	9.39
116 C	Fluoranthene	1.070	1.226	-14.6	101	0.00	9.53
117 I	Chrysene-d12	1.000	1.000	0.0	105	0.00	11.20
-----Amount-----				Calc.	%Drift	-----	
118 T	kepone	50.000	23.947	52.1#	0	0.16	10.75
119 T	Famphur	50.000	45.882	8.2	97	-0.01	11.09
-----AvgRF-----				CCRF	%Dev	-----	
120 T	Benzidine			-----NA-----			
121 M	Pyrene	0.871	0.925	-6.2	97	0.00	9.78
122 S	Terphenyl-d14			-----NA-----			
123 T	Aramite	0.053	0.058	-9.4	106	0.00	10.08
124 T	p-Dimethylaminoazobenzene	0.227	0.233	-2.6	103	-0.01	10.16
125 T	Chlorobenzilate	0.605	0.650	-7.4	107	-0.01	10.23
126 T	3,3'-Dimethylbenzidine	0.946	0.241	74.5#	23#	-0.01	10.55
127 T	Butylbenzylphthalate	0.291	0.339	-16.5	103	0.00	10.60
128 T	2-Acetylaminofluorene	0.358	0.379	-5.9	108	0.00	10.86
129 T	3,3'-Dichlorobenzidine			-----NA-----			
130 T	Benzo[alanthracene	0.872	0.997	-14.3	105	0.00	11.18
131 T	Chrysene	0.836	0.918	-9.8	101	-0.01	11.23
132 T	bis(2-Ethylhexyl)phthalat	0.425	0.494	-16.2	101	0.00	11.32
133 I	Perylene-d12	1.000	1.000	0.0	106	0.00	12.80
134 C	Di-n-octylphthalate	0.787	0.844	-7.2	105	0.00	12.01
135 T	7,12-Dimethylbenz(a)anthr	0.500	0.553	-10.6	101	0.00	12.42
136 T	Benzo[b]fluoranthene	0.975	1.165	-19.5	102	-0.01	12.40
137 T	Benzo[k]fluoranthene	0.980	1.002	-2.2	98	0.00	12.43
138 C	Benzo[a]pyrene	0.889	0.877	1.3	88	0.00	12.74
-----Amount-----				Calc.	%Drift	-----	
139 T	Hexachlorophene			-----NA-----			
-----AvgRF-----				CCRF	%Dev	-----	
140 T	3-Methylcholanthrene	0.639	0.642	-0.5	102	-0.01	13.13
141 T	Dibenz(a,j)acridine	0.877	0.869	0.9	99	0.00	13.76
142 T	Indeno[1,2,3-cd]pyrene	1.154	1.252	-8.5	98	0.00	13.98
143 T	Dibenz[a,h]anthracene	0.960	1.057	-10.1	100	-0.01	13.99
144 T	Benzo[g,h,i]perylene	0.938	1.027	-9.5	100	-0.01	14.30

9.7.10
6

Initial Calibration Verification

Page 4 of 4

Job Number: JB37699

Sample: MSW581-ICV580

Account: ALNJ Accutest New Jersey

Lab FileID: W12610.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

145	1,4-Dichlorobenzene-d4a	-----NA-----
146	Benzaldehyde	-----NA-----
147	Naphthalene-d8a	-----NA-----
148	Caprolactam	-----NA-----
149	Acenaphthene-d10a	-----NA-----
150	1,1'-Biphenyl	-----NA-----
151	Phenanthrene-d10a	-----NA-----
152	Atrazine	-----NA-----

(#) = Out of Range
W12593.D W130530_AP9+.m

SPCC's out = 2 CCC's out = 6
Fri May 31 10:58:05 2013

9.7.10
9

Continuing Calibration Summary

Page 1 of 4

Job Number: JB37699

Sample: MSW592-CC580

Account: ALNJ Accutest New Jersey

Lab FileID: W12831.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130605\W12831.D Vial: 100
 Acq On : 5 Jun 2013 8:19 am Operator: kristinr
 Sample : CC580-50 Inst : MSW
 Misc : OP33113,MSW592,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\methods\W130530_AP9+.m (RTE Integrator)
 Title : SW-846 Method 8270
 Last Update : Fri May 31 10:52:01 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)R.T.	
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	113	0.00	4.22
2	Methyl Methacrylate	0.489	0.470	3.9	95	0.00	2.15
3 T	N-Nitrosodimethylamine	0.496	0.475	4.2	94	0.01	2.35
4 T	Pyridine	0.941	0.910	3.3	93	0.01	2.37
5 T	Ethyl Methacrylate	0.679	0.666	1.9	98	0.00	2.64
6 T	2-Picoline	1.047	1.029	1.7	97	0.01	2.86
7 T	n-Nitrosomethylethylamine	0.408	0.399	2.2	96	0.01	2.95
8 T	Methyl Methanesulfonate	0.469	0.440	6.2	94	0.00	3.17
9 T	n-Nitrosodiethylamine	0.463	0.462	0.2	99	0.00	3.44
10 T	Ethyl Methanesulfonate	0.651	0.612	6.0	94	0.00	3.66
11 T	Aniline	1.480	1.473	0.5	98	0.00	3.99
12 S	2-Fluorophenol	1.026	0.920	10.3	100	0.02	3.28
13 T	bis(2-Chloroethyl)ether	0.879	0.864	1.7	98	0.00	4.03
14 T	Pentachloroethane	0.352	0.354	-0.6	99	0.00	3.99
15 S	Phenol-d5	1.244	1.101	11.5	99	0.01	3.96
16 C	Phenol	1.145	1.270	-10.9	109	0.02	3.97
17 M	2-Chlorophenol	1.077	1.078	-0.1	100	0.00	4.08
18 T	1,3-Dichlorobenzene	1.230	1.280	-4.1	102	0.00	4.19
19 C	1,4-Dichlorobenzene	1.295	1.339	-3.4	103	0.00	4.23
20 T	1,2-Dichlorobenzene	1.185	1.214	-2.4	101	0.00	4.38
21 T	Benzyl alcohol	0.666	0.503	24.5#	74	0.00	4.34
22 T	bis(2-chloroisopropyl)eth	0.699	0.633	9.4	91	0.00	4.46
23 T	o-cresol	0.920	0.998	-8.5	107	0.01	4.45
24 T	Acetophenone	1.425	1.374	3.6	95	0.00	4.56
25 T	n-Nitrosopyrrolidine	0.486	0.471	3.1	93	0.00	4.56
26 T	n-Nitrosomorpholine	0.502	0.434	13.5	85	0.00	4.57
27 T	Hexachloroethane	0.405	0.400	1.2	98	0.00	4.64
28 P	N-Nitroso-di-n-propylamin	0.616	0.562	8.8	90	0.00	4.58
29 T	m+p-cresols	0.980	0.937	4.4	93	0.01	4.57
30	4-methylphenol	0.980	0.937	4.4	93	0.01	4.57
31 I	Naphthalene-d8	1.000	1.000	0.0	106	0.00	5.28
32 S	Nitrobenzene-d5	0.285	0.256	10.2	93	0.00	4.69
33 T	Nitrobenzene	0.262	0.267	-1.9	94	0.00	4.71
34 T	n-Nitrosopiperidine	0.138	0.144	-4.3	96	0.00	4.83
35 T	Isophorone	0.453	0.447	1.3	92	0.00	4.89
36 C	2-Nitrophenol	0.188	0.181	3.7	100	0.00	4.97
37 T	2,4-Dimethylphenol	0.279	0.290	-3.9	95	0.00	5.00
38 T	bis(2-Chloroethoxy)methan	0.376	0.377	-0.3	93	0.00	5.07
39 T	alpha, alpha-Dimethylphen	0.030	0.026#	13.3	73	0.00	7.94
40 T	O,O,O-Triethyl phosphorot	0.131	0.138	-5.3	97	0.00	5.08
41 T	Benzoic acid	0.190	0.171	10.0	78	0.00	5.08

9.7.11
6

Continuing Calibration Summary

Page 2 of 4

Job Number: JB37699

Sample: MSW592-CC580

Account: ALNJ Accutest New Jersey

Lab FileID: W12831.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

42 C	2,4-Dichlorophenol	0.290	0.310	-6.9	98	0.00	5.17
43 M	1,2,4-Trichlorobenzene	0.318	0.340	-6.9	98	0.00	5.24
44 T	Naphthalene	0.853	0.900	-5.5	98	0.00	5.29
45 T	2,6-Dichlorophenol	0.288	0.297	-3.1	95	0.00	5.36
46 T	4-Chloroaniline	0.370	0.389	-5.1	97	0.00	5.36
47 T	Hexachloropropene	0.231	0.250	-8.2	98	0.00	5.39
48 C	Hexachlorobutadiene	0.208	0.225	-8.2	100	0.00	5.45
49 T	n-Nitroso-di-n-butylamine	0.174	0.174	0.0	90	0.00	5.65
50 T	p-phenylenediamine	0.195	0.219	-12.3	91	0.00	5.65
51 C	4-Chloro-3-methylphenol	0.248	0.252	-1.6	93	0.01	5.77
52 T	Safrole	0.277	0.293	-5.8	97	0.00	5.82
53 T	2-Methylnaphthalene	0.641	0.675	-5.3	98	0.00	5.89
54	1-methylnaphthalene	0.607	0.649	-6.9	98	0.00	5.98
55 I	Acenaphthene-d10	1.000	1.000	0.0	105	0.00	6.82
56 P	Hexachlorocyclopentadiene	0.174	0.155	10.9	89	0.00	6.08
57 T	1,2,4,5-Tetrachlorobenzene	0.569	0.610	-7.2	97	0.00	6.07
58 C	2,4,6-Trichlorophenol	0.361	0.368	-1.9	92	0.00	6.15
59 T	2,4,5-Trichlorophenol	0.393	0.409	-4.1	94	0.00	6.19
60 S	2-Fluorobiphenyl	1.270	1.194	6.0	97	0.00	6.22
61 T	2-Chloronaphthalene	1.014	1.068	-5.3	96	0.00	6.31
62 T	1-Chloronaphthalene	0.825	0.870	-5.5	95	0.00	6.34
63 T	Isosafrole	0.370	0.396	-7.0	94	0.00	6.26
64 T	1,4-Naphthoquinone	0.386	0.383	0.8	89	0.00	6.46
65 M	Acenaphthylene	1.498	1.554	-3.7	94	0.00	6.68
66 T	Dimethylphthalate	1.114	1.120	-0.5	91	0.00	6.61
67 T	1,3-Dinitrobenzene	0.204	0.199	2.5	94	0.00	6.62
68 T	2,6-Dinitrotoluene	0.255	0.271	-6.3	94	0.00	6.67
69 C	Acenaphthene	0.923	0.954	-3.4	94	0.00	6.84
70 P	2,4-Dinitrophenol	0.191	0.189	1.0	86	0.00	6.88
71 T	Pentachlorobenzene	0.601	0.630	-4.8	95	0.00	7.01
72 T	Dibenzofuran	1.437	1.494	-4.0	95	0.00	6.99
73 M	2,4-Dinitrotoluene	0.329	0.346	-5.2	92	0.00	7.02
74 P	4-Nitrophenol	0.148	0.146	1.4	86	0.01	6.95
75 T	o-toluidine	0.589	0.636	-8.0	98	0.00	4.60
76 T	1-Naphthylamine	0.478	0.479	-0.2	91	0.00	7.06
77 T	2,3,4,6-Tetrachlorophenol	0.444	0.392	11.7	90	0.00	7.14
78 T	2-Naphthylamine	1.021	1.050	-2.8	92	0.00	7.13
79 T	Fluorene	1.112	1.143	-2.8	92	0.00	7.31
80 T	4-Chlorophenyl-phenylethane	0.641	0.652	-1.7	93	0.00	7.30
81 T	5-Nitro-o-toluidine	0.312	0.327	-4.8	92	0.00	7.34
82 T	Diethylphthalate	1.151	0.997	13.4	89	0.00	7.25
83 T	2-nitroaniline	0.273	0.305	-11.7	97	0.00	6.43
84 T	3-nitroaniline	0.243	0.262	-7.8	94	0.00	6.79
85 T	4-nitroaniline	0.250	0.265	-6.0	93	0.00	7.36
86 I	Phenanthrene-d10	1.000	1.000	0.0	99	0.00	8.23
87	tetraethyl dithiopyrophos	0.130	0.176	-35.4#	113	0.00	7.66
88 T	4,6-Dinitro-2-methylpheno	0.154	0.141	8.4	90	0.00	7.40
89 T	Thionazin	0.070	0.076	-8.6	90	0.00	7.32
90 T	phorate	0.202	0.233	-15.3	97	0.00	7.75
91 T	parathion	0.102	0.097	4.9	88	0.00	9.10
92 T	methyl parathion	0.171	0.163	4.7	88	0.00	8.66
93 T	Disulfoton	0.186	0.193	-3.8	88	0.00	8.27
94 T	Dimethoate	0.160	0.161	-0.6	94	0.00	7.92
95 T	Diallate	0.157	0.157	0.0	85	0.00	7.73
96 C	Diphenylamine	0.958	1.025	-7.0	92	0.00	7.42
97 C	n-Nitrosodiphenylamine	0.479	0.512	-6.9	92	0.00	7.42
98 T	1,2-Diphenylhydrazine	0.377	0.375	0.5	86	0.00	7.45
99 S	2,4,6-Tribromophenol	0.159	0.151	5.0	92	0.00	7.56

9.7.11
6

Continuing Calibration Summary

Job Number: JB37699

Sample: MSW592-CC580

Account: ALNJ Accutest New Jersey

Lab FileID: W12831.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

100 T	sym-Trinitrobenzene	0.100	0.097	3.0	77	0.00	7.72
101 T	Phenacetin	0.240	0.252	-5.0	89	0.00	7.75
102 T	4-Bromophenyl-phenylether	0.233	0.252	-8.2	94	0.00	7.77
103 T	Hexachlorobenzene	0.254	0.275	-8.3	93	0.00	7.92
104 C	Pentachlorophenol	0.215	0.188	12.6	85	0.00	8.10
105 T	4-Aminobiphenyl	0.958	1.025	-7.0	92	0.00	7.42
106 T	Pentachloronitrobenzene	0.081	0.085	-4.9	89	0.00	8.18
107 T	Pronamide	0.271	0.295	-8.9	90	0.00	8.14
108 T	2-sec-Butyl-4,6-Dinitroph	0.726	0.690	5.0	91	0.00	8.29
109 T	Phenanthrene	0.889	0.942	-6.0	92	0.00	8.25
110 T	Anthracene	0.942	1.002	-6.4	91	0.00	8.30
111 T	Carbazole	0.821	0.870	-6.0	92	0.00	8.47
112 T	Di-n-butylphthalate	0.925	0.938	-1.4	86	0.00	8.89
-----				Amount	Calc.	%Drift	-----
113 T	4-Nitroquinoline-1-oxide	40.000	47.872	-19.7	124	0.00	9.09
-----				AvgRF	CCRF	%Dev	-----
114 T	Methapyrilene	0.153	0.183	-19.6	111	0.00	9.22
115 T	Isodrin	0.104	0.108	-3.8	87	0.00	9.39
116 C	Fluoranthene	1.070	1.125	-5.1	90	0.00	9.53
117 I	Chrysene-d12	1.000	1.000	0.0	98	0.00	11.21
-----				Amount	Calc.	%Drift	-----
118 T	kepone	40.000	15.404	61.5#	0	0.00	10.58
119 T	Famphur	40.000	61.296	-53.2#	150	-0.01	11.09
-----				AvgRF	CCRF	%Dev	-----
120 T	Benzidine	0.423	0.450	-6.4	101	0.00	9.69
121 M	Pyrene	0.871	0.924	-6.1	90	0.00	9.79
122 S	Terphenyl-d14	0.847	0.798	5.8	90	0.00	9.98
123 T	Aramite	0.053	0.059	-11.3	102	0.00	10.08
124 T	p-Dimethylaminoazobenzene	0.227	0.218	4.0	90	0.00	10.17
125 T	Chlorobenzilate	0.605	0.629	-4.0	97	0.00	10.23
126 T	3,3'-Dimethylbenzidine	0.946	1.098	-16.1	96	0.00	10.55
127 T	Butylbenzylphthalate	0.291	0.309	-6.2	88	0.00	10.60
128 T	2-Acetylaminofluorene	0.358	0.361	-0.8	96	0.00	10.86
129 T	3,3'-Dichlorobenzidine	0.350	0.396	-13.1	94	0.00	11.18
130 T	Benzo[alanthracene	0.872	0.922	-5.7	90	0.00	11.19
131 T	Chrysene	0.836	0.886	-6.0	91	0.00	11.23
132 T	bis(2-Ethylhexyl)phthalat	0.425	0.451	-6.1	87	0.00	11.31
133 I	Perylene-d12	1.000	1.000	0.0	99	0.00	12.80
134 C	Di-n-octylphthalate	0.787	0.745	5.3	89	0.00	12.01
135 T	7,12-Dimethylbenz(a)anthr	0.500	0.525	-5.0	89	0.00	12.42
136 T	Benzo[b]fluoranthene	0.975	1.035	-6.2	92	0.00	12.40
137 T	Benzo[k]fluoranthene	0.980	1.067	-8.9	91	0.00	12.43
138 C	Benzo[a]pyrene	0.889	0.943	-6.1	91	0.00	12.74
-----				Amount	Calc.	%Drift	-----
139 T	Hexachlorophene	40.000	26.301	34.2#	53	0.01	12.64
-----				AvgRF	CCRF	%Dev	-----
140 T	3-Methylcholanthrene	0.639	0.612	4.2	92	0.00	13.13
141 T	Dibenz(a,j)acridine	0.877	0.875	0.2	96	0.00	13.76
142 T	Indeno[1,2,3-cd]pyrene	1.154	1.229	-6.5	91	0.00	13.98
143 T	Dibenz[a,h]anthracene	0.960	1.024	-6.7	91	0.00	14.00
144 T	Benzo[g,h,i]perylene	0.938	0.999	-6.5	91	0.00	14.31

9.7.11

6

Continuing Calibration Summary

Job Number: JB37699

Sample: MSW592-CC580

Account: ALNJ Accutest New Jersey

Lab FileID: W12831.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

145	1,4-Dichlorobenzene-d4a	-----NA-----
146	Benzaldehyde	-----NA-----
147	Naphthalene-d8a	-----NA-----
148	Caprolactam	-----NA-----
149	Acenaphthene-d10a	-----NA-----
150	1,1'-Biphenyl	-----NA-----
151	Phenanthrene-d10a	-----NA-----
152	Atrazine	-----NA-----

(#) = Out of Range
W12597.D W130530_AP9+.mSPCC's out = 0 CCC's out = 0
Thu Jun 06 14:06:41 2013

9.7.11

6

Continuing Calibration Summary

Job Number: JB37699

Sample: MSW591-CC579

Account: ALNJ Accutest New Jersey

Lab FileID: W12833.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130605\W12833.D Vial: 100
 Acq On : 5 Jun 2013 9:06 am Operator: kristinr
 Sample : CC579-80 Inst : MSW
 Misc : OP33113,MSW591,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met... \W130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu Jun 06 09:42:09 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	76	0.00
2	N-nitrosodimethylamine	0.628	0.554	11.8	67	0.01
3 T	Pyridine	1.179	1.037	12.0	68	0.02
4 T	Aniline	0.559	0.508	9.1	72	0.00
5 S	2-Fluorophenol	1.083	1.030	4.9	74	0.02
6 T	bis(2-Chloroethyl)ether	0.675	0.591	12.4	67	0.00
7 S	Phenol-d5	1.320	1.240	6.1	72	0.02
8 C	Phenol	1.408	1.405	0.2	75	0.02
9 M	2-Chlorophenol	1.289	1.246	3.3	73	0.01
10 T	1,3-Dichlorobenzene	1.484	1.474	0.7	77	0.00
11 C	1,4-Dichlorobenzene	1.568	1.533	2.2	75	0.00
12 T	1,2-Dichlorobenzene	1.431	1.406	1.7	75	0.00
13 T	Benzyl alcohol	0.798	0.635	20.4#	60	0.01
14 T	bis(2-chloroisopropyl)eth	0.887	0.736	17.0	64	0.00
15 T	o-cresol	1.091	1.101	-0.9	76	0.01
16 T	Acetophenone	1.718	1.552	9.7	71	0.00
17 T	Hexachloroethane	0.493	0.471	4.5	73	0.00
18 P	N-Nitroso-di-n-propylamin	0.721	0.650	9.8	67	0.00
19 T	m+p-cresols	1.179	1.116	5.3	72	0.02
20	4-methylphenol	1.179	1.116	5.3	72	0.02
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	57	-0.05
22	Benzaldehyde				-----NA-----	
23 I	Naphthalene-d8	1.000	1.000	0.0	72	0.00
24 S	Nitrobenzene-d5	0.295	0.285	3.4	69	0.00
25 T	Nitrobenzene	0.304	0.291	4.3	68	0.00
26 T	Isophorone	0.565	0.519	8.1	67	0.00
27 C	2-Nitrophenol	0.196	0.210	-7.1	75	0.00
28 T	2,4-Dimethylphenol	0.332	0.325	2.1	71	0.02
29 T	bis(2-Chloroethoxy)methan	0.356	0.333	6.5	69	0.00
30 T	Benzoic acid	80.000	80.416	-0.5	72	0.02
31 C	2,4-Dichlorophenol	0.345	0.350	-1.4	73	0.02
32 M	1,2,4-Trichlorobenzene	0.383	0.387	-1.0	74	0.00
33 T	Naphthalene	1.033	1.043	-1.0	74	0.00
34 T	2,6-Dichlorophenol	0.342	0.343	-0.3	73	0.01
35 T	4-Chloroaniline	0.439	0.434	1.1	71	0.00
36 C	Hexachlorobutadiene	0.249	0.253	-1.6	75	0.00

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9

Continuing Calibration Summary

Job Number: JB37699

Sample: MSW591-CC579

Account: ALNJ Accutest New Jersey

Lab FileID: W12833.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

37 C	4-Chloro-3-methylphenol	0.295	0.286	3.1	70	0.02	5.77
38 T	2-Methylnaphthalene	0.768	0.766	0.3	73	0.00	5.89
39 T	1-Methylnaphthalene	0.737	0.716	2.8	73	0.00	5.98
40 T	1,2,4,5-Tetrachlorobenzene	0.475	0.465	2.1	74	0.00	6.07
41 I	Naphthalene-d8a	1.000	1.000	0.0	60	-0.05	5.28
42	Caprolactam			-----NA-----			
43 I	Acenaphthene-d10	1.000	1.000	0.0	72	0.00	6.82
44 T	Pentachloronitrobenzene	0.185	0.184	0.5	73	0.00	8.18
45 P	Hexachlorocyclopentadiene	0.411	0.442	-7.5	71	0.00	6.08
46 C	2,4,6-Trichlorophenol	0.436	0.437	-0.2	72	0.01	6.16
47 T	2,4,5-Trichlorophenol	0.464	0.472	-1.7	72	0.01	6.19
48 S	2-Fluorobiphenyl	1.373	1.370	0.2	74	0.00	6.22
49 T	2-Chloronaphthalene	1.097	1.098	-0.1	73	0.00	6.31
50 M	Acenaphthylene	1.794	1.802	-0.4	73	0.00	6.68
51 T	Dimethylphthalate	1.348	1.320	2.1	71	0.00	6.61
52 T	2,4-Dinitrotoluene	0.394	0.411	-4.3	74	0.00	7.02
53 C	Acenaphthene	1.113	1.116	-0.3	73	0.00	6.85
54 P	2,4-Dinitrophenol	0.230	0.239	-3.9	72	0.01	6.88
55 T	Dibenzofuran	1.720	1.732	-0.7	74	0.00	6.99
56 M	2,6-Dinitrotoluene	0.299	0.313	-4.7	72	0.00	6.67
57 P	4-Nitrophenol	0.183	0.172	6.0	67	0.02	6.95
58 T	2,3,4,6-Tetrachlorophenol	0.463	0.470	-1.5	73	0.00	7.14
59 T	Fluorene	1.357	1.355	0.1	73	0.00	7.31
60 T	4-Chlorophenyl-phenylethane	0.766	0.761	0.7	72	0.00	7.30
61 T	Diethylphthalate	1.221	1.176	3.7	70	0.00	7.25
62 T	2-nitroaniline	0.331	0.364	-10.0	76	0.00	6.43
63 T	3-nitroaniline	0.294	0.307	-4.4	74	0.00	6.79
64 T	4-nitroaniline	0.295	0.315	-6.8	76	0.01	7.37
65	Acenaphthene-d10a	1.000	1.000	0.0	55	-0.05	6.82
66	1,1'-Biphenyl			-----NA-----			
67 I	Phenanthrene-d10	1.000	1.000	0.0	72	0.00	8.23
68 T	4,6-Dinitro-2-methylphenol	0.159	0.170	-6.9	74	0.00	7.40
69 C	n-Nitrosodiphenylamine	0.524	0.519	1.0	72	0.00	7.42
70 T	1,2-Diphenylhydrazine	0.481	0.432	10.2	67	0.00	7.45
71 S	2,4,6-Tribromophenol	0.161	0.171	-6.2	75	0.00	7.56
72 T	4-Bromophenyl-phenylether	0.275	0.289	-5.1	75	0.00	7.77
73 T	Hexachlorobenzene	0.301	0.314	-4.3	74	0.00	7.92
74 C	Pentachlorophenol	0.218	0.215	1.4	70	0.00	8.10
75 T	Phenanthrene	1.083	1.071	1.1	73	0.00	8.25
76 T	Anthracene	1.131	1.120	1.0	73	0.00	8.30
77 T	Carbazole	0.969	0.973	-0.4	74	0.00	8.47
78 T	Di-n-butylphthalate	1.095	1.066	2.6	69	0.00	8.89
79 C	Fluoranthene	1.267	1.285	-1.4	75	0.00	9.54
80 I	Phenanthrene-d10a	1.000	1.000	0.0	60	-0.04	8.23
81	Atrazine			-----NA-----			
82 I	Chrysene-d12	1.000	1.000	0.0	76	0.00	11.21
83 T	Benzidine	0.264	0.365	-38.3#	97	0.00	9.69
84 M	Pyrene	1.061	1.040	2.0	74	0.00	9.79
85 S	Terphenyl-d14	0.922	0.895	2.9	75	0.00	9.98
86	3,3-Dimethylbenzidine	0.394	0.498	-26.4#	86	0.00	10.55
87 T	Butylbenzylphthalate	0.319	0.361	-13.2	79	0.00	10.60
88 T	3,3'-Dichlorobenzidine	0.406	0.462	-13.8	80	0.00	11.18
89 T	Benzo[a]anthracene	1.057	1.045	1.1	76	0.00	11.19
90 T	Chrysene	1.033	1.013	1.9	76	0.00	11.24

9.7.12
9

Continuing Calibration Summary

Job Number: JB37699

Sample: MSW591-CC579

Account: ALNJ Accutest New Jersey

Lab FileID: W12833.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

91 T	bis(2-Ethylhexyl)phthalat	0.489	0.522	-6.7	73	0.00	11.31
92 I	Perylene-d12	1.000	1.000	0.0	78	0.00	12.80
93 C	Di-n-octylphthalate	0.753	0.860	-14.2	80	0.00	12.01
94 T	Benzo[b]fluoranthene	1.199	1.204	-0.4	72	0.00	12.41
95 T	Benzo[k]fluoranthene	1.183	1.151	2.7	85	0.00	12.44
96 C	Benzo[a]pyrene	1.059	1.079	-1.9	76	0.00	12.74
97 T	Indeno[1,2,3-cd]pyrene	1.364	1.443	-5.8	78	0.00	13.99
98 T	Dibenz[a,h]anthracene	1.126	1.194	-6.0	79	0.00	14.00
99 T	Benzo[g,h,i]perylene	1.139	1.179	-3.5	78	0.01	14.32

(#) = Out of Range
w12585.D W130530_8270+.m

SPCC's out = 0 CCC's out = 0
Thu Jun 06 16:19:57 2013

9.7.12

9



GC/MS Semi-volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130605\
 Data File : W12845.D
 Acq On : 5 Jun 2013 1:50 pm
 Operator : kristinr
 Sample : JB37699-1
 Misc : OP33459,MSW591,20.50,,,1,5
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 13 10:55:50 2013
 Quant Method : C:\msdchem\1\methods\W130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu Jun 06 09:42:09 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.219	152	44520	40.00	ppm	0.00
21) 1,4-Dichlorobenzene-d4A	4.219	152	44520	40.00	PPM	#-0.05
23) Naphthalene-d8	5.277	136	164292	40.00	ppm	0.00
41) Naphthalene-d8a	5.277	136	164292	40.00	ppm	#-0.05
43) Acenaphthene-d10	6.815	164	112253	40.00	ppm	0.00
65) Acenaphthene-d10a	6.815	164	112253	40.00	ppm	#-0.05
67) Phenanthrene-d10	8.220	188	212061	40.00	ppm	0.00
80) Phenanthrene-d10a	8.220	188	211623m	40.00	ppm	-0.04
82) Chrysene-d12	11.201	240	269919	40.00	ppm	0.00
92) Perylene-d12	12.799	264	275300	40.00	ppm	0.00
<hr/>						
System Monitoring Compounds						
5) 2-Fluorophenol	3.279	112	5632	4.67	ppm	0.02
Spiked Amount 100.000	Range 30 - 130		Recovery =	4.67%#		
7) Phenol-d5	3.963	99	7020	4.78	ppm	0.02
Spiked Amount 100.000	Range 30 - 130		Recovery =	4.78%#		
24) Nitrobenzene-d5	4.689	82	5536	4.56	ppm	0.00
Spiked Amount 50.000	Range 30 - 130		Recovery =	9.12%#		
48) 2-Fluorobiphenyl	6.217	172	21245	5.51	ppm	0.00
Spiked Amount 50.000	Range 30 - 130		Recovery =	11.02%#		
71) 2,4,6-Tribromophenol	7.553	330	5127	6.00	ppm	0.00
Spiked Amount 100.000	Range 30 - 130		Recovery =	6.00%#		
85) Terphenyl-d14	9.978	244	40697	6.54	ppm	0.00
Spiked Amount 50.000	Range 30 - 130		Recovery =	13.08%#		
<hr/>						
Target Compounds				Qvalue		
91) bis(2-Ethylhexyl)phtha...	11.314	149	4752	1.44	ppm	88
99) Benzo[g,h,i]perylene	14.300	276	4114	0.53	ppm	88

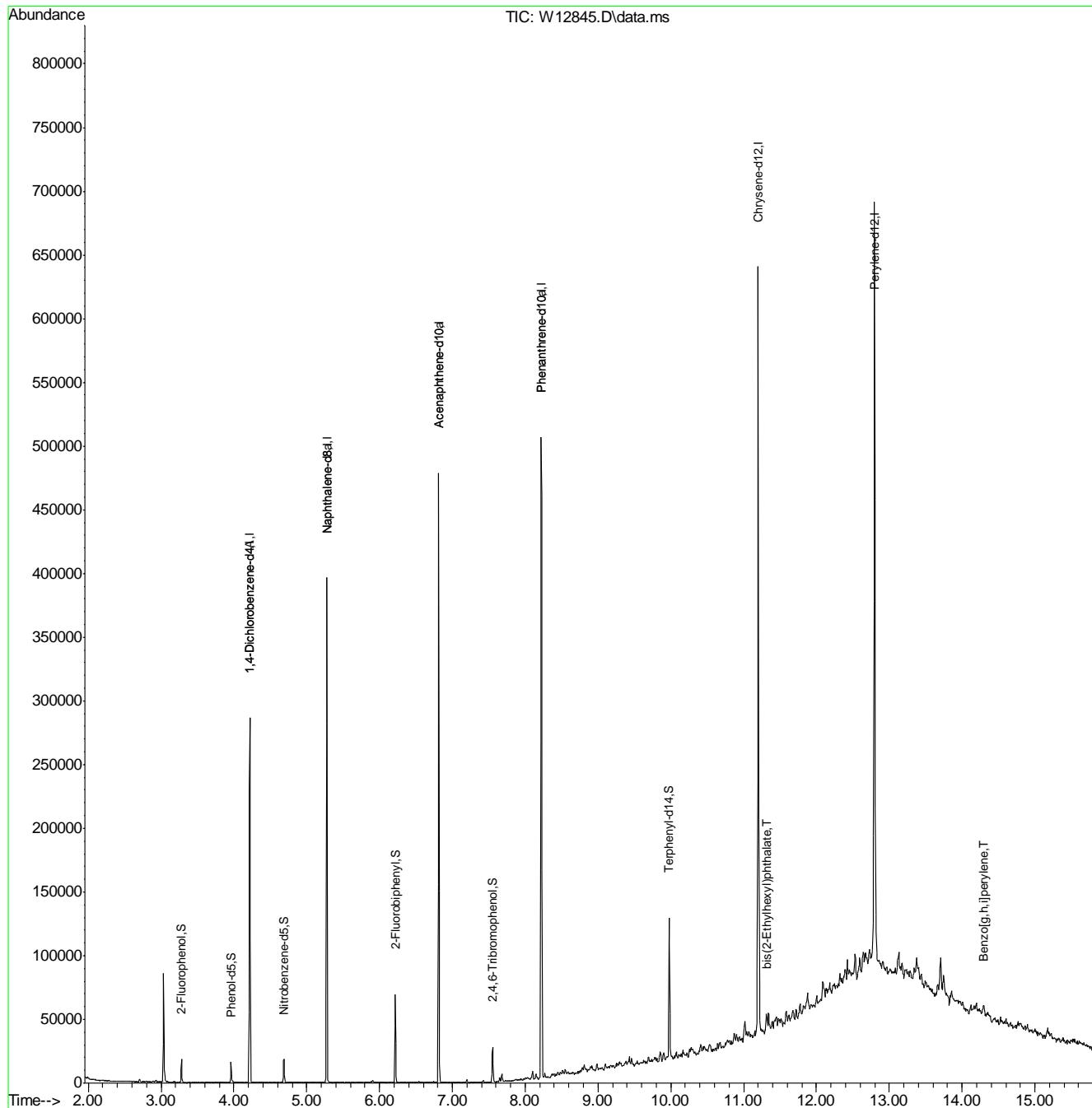
(#) = qualifier out of range (m) = manual integration (+) = signals summed

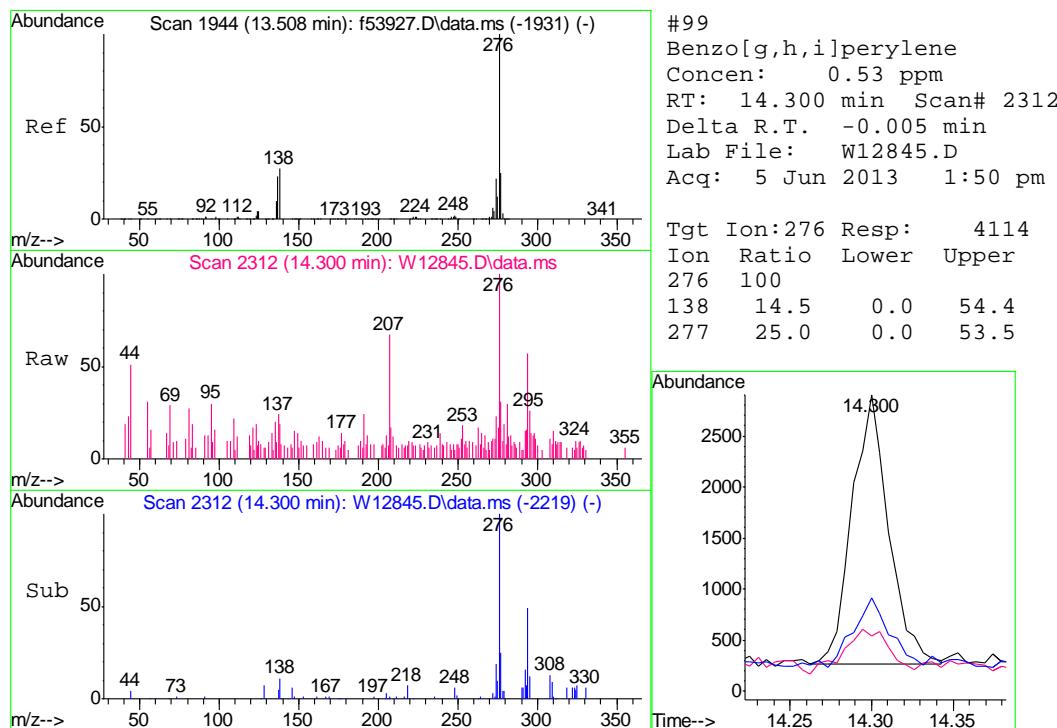
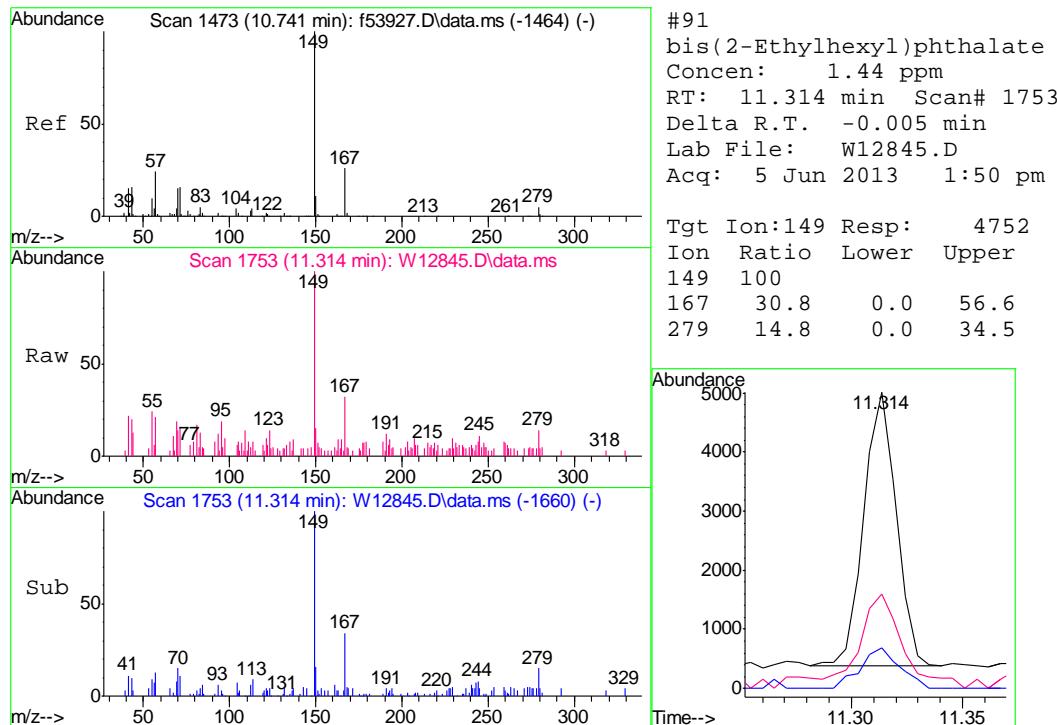
10.1.1
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130605\
 Data File : W12845.D
 Acq On : 5 Jun 2013 1:50 pm
 Operator : kristinr
 Sample : JB37699-1
 Misc : OP33459,MSW591,20.50,,,1,5
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 13 10:55:50 2013
 Quant Method : C:\msdchem\1\methods\W130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu Jun 06 09:42:09 2013
 Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130605\
 Data File : W12846.D
 Acq On : 5 Jun 2013 2:14 pm
 Operator : kristinr
 Sample : JB37699-2
 Misc : OP33459,MSW591,20.19,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 13 10:56:34 2013
 Quant Method : C:\msdchem\1\methods\W130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu Jun 06 09:42:09 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.219	152	49619	40.00	ppm	0.00
21) 1,4-Dichlorobenzene-d4A	4.219	152	49619	40.00	PPM	#-0.05
23) Naphthalene-d8	5.277	136	180760	40.00	ppm	0.00
41) Naphthalene-d8a	5.277	136	180760	40.00	ppm	#-0.05
43) Acenaphthene-d10	6.815	164	124880	40.00	ppm	0.00
65) Acenaphthene-d10a	6.815	164	124880	40.00	ppm	#-0.05
67) Phenanthrene-d10	8.220	188	234751	40.00	ppm	0.00
80) Phenanthrene-d10a	8.220	188	234467m	40.00	ppm	-0.04
82) Chrysene-d12	11.201	240	302830	40.00	ppm	0.00
92) Perylene-d12	12.793	264	306321	40.00	ppm	0.00
<hr/>						
System Monitoring Compounds						
5) 2-Fluorophenol	3.279	112	34488	25.67	ppm	0.02
Spiked Amount 100.000	Range 30 - 130		Recovery = 25.67%#			
7) Phenol-d5	3.963	99	40771	24.90	ppm	0.02
Spiked Amount 100.000	Range 30 - 130		Recovery = 24.90%#			
24) Nitrobenzene-d5	4.689	82	32919	24.66	ppm	0.00
Spiked Amount 50.000	Range 30 - 130		Recovery = 49.32%			
48) 2-Fluorobiphenyl	6.217	172	128848	30.06	ppm	0.00
Spiked Amount 50.000	Range 30 - 130		Recovery = 60.12%			
71) 2,4,6-Tribromophenol	7.553	330	35277	37.26	ppm	0.00
Spiked Amount 100.000	Range 30 - 130		Recovery = 37.26%			
85) Terphenyl-d14	9.983	244	266233	38.14	ppm	0.00
Spiked Amount 50.000	Range 30 - 130		Recovery = 76.28%			
<hr/>						
Target Compounds				Qvalue		
91) bis(2-Ethylhexyl)phtha...	11.314	149	4051	1.10	ppm	82

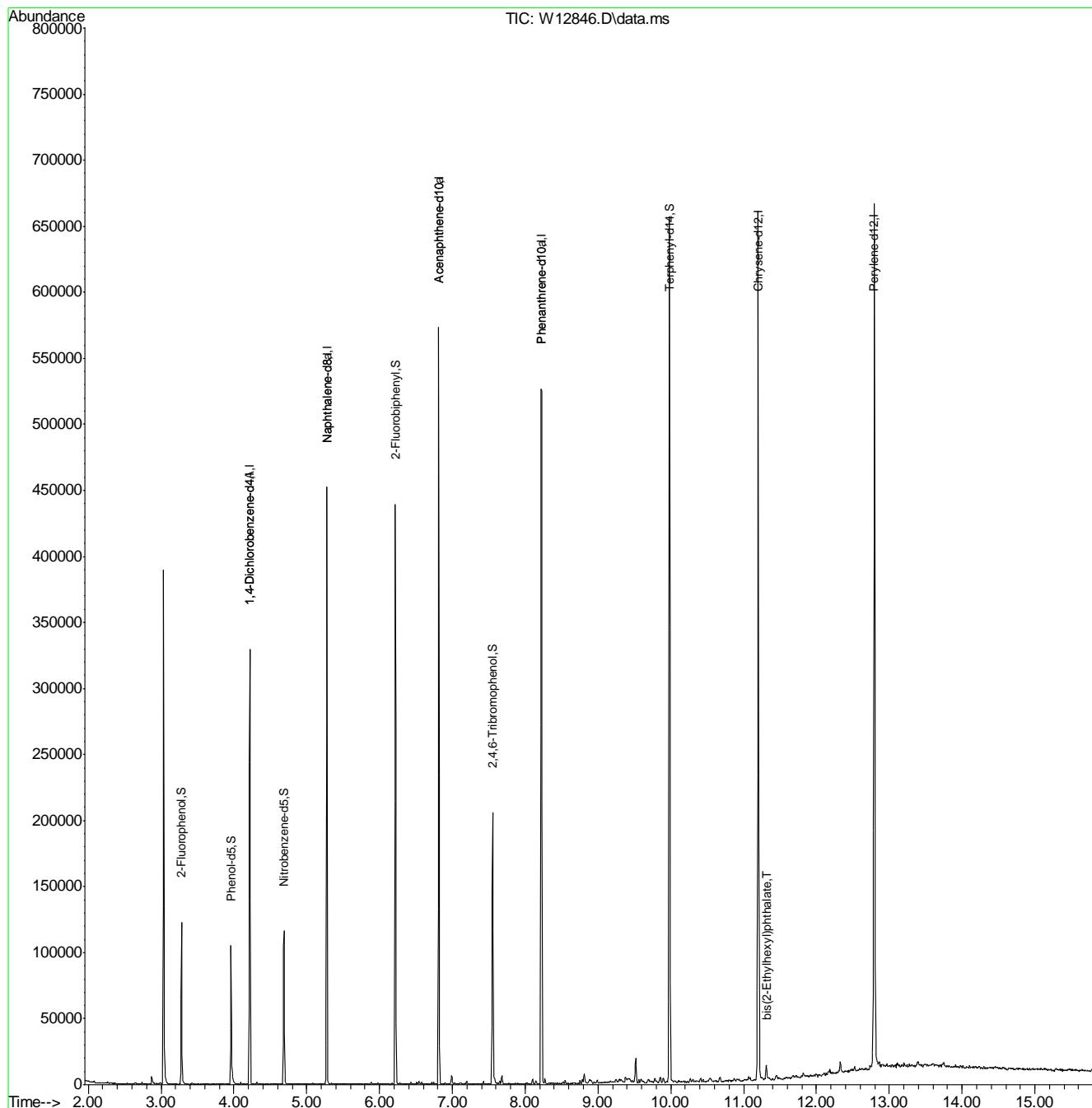
(#) = qualifier out of range (m) = manual integration (+) = signals summed

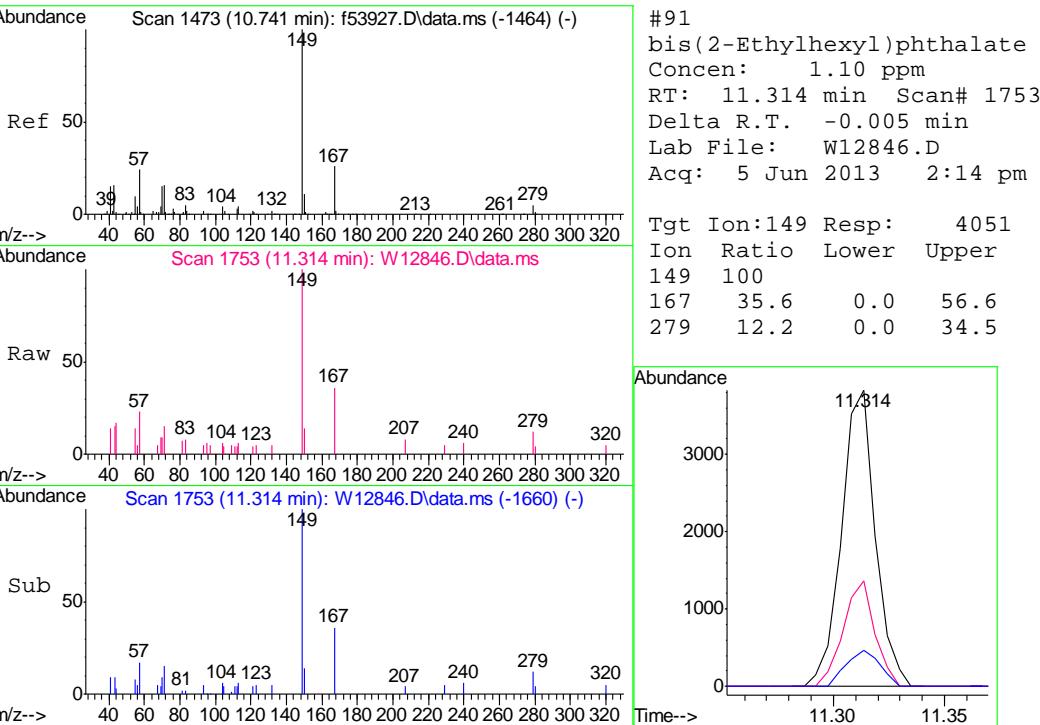
10.1.2
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130605\
 Data File : W12846.D
 Acq On : 5 Jun 2013 2:14 pm
 Operator : kristinr
 Sample : JB37699-2
 Misc : OP33459,MSW591,20.19,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 13 10:56:34 2013
 Quant Method : C:\msdchem\1\methods\W130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu Jun 06 09:42:09 2013
 Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130605\
 Data File : W12837.D
 Acq On : 5 Jun 2013 10:41 am
 Operator : kristinr
 Sample : OP33459-MB
 Misc : OP33459,MSW591,20.49,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 06 15:26:57 2013
 Quant Method : C:\msdchem\1\methods\W130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu Jun 06 09:42:09 2013
 Response via : Initial Calibration

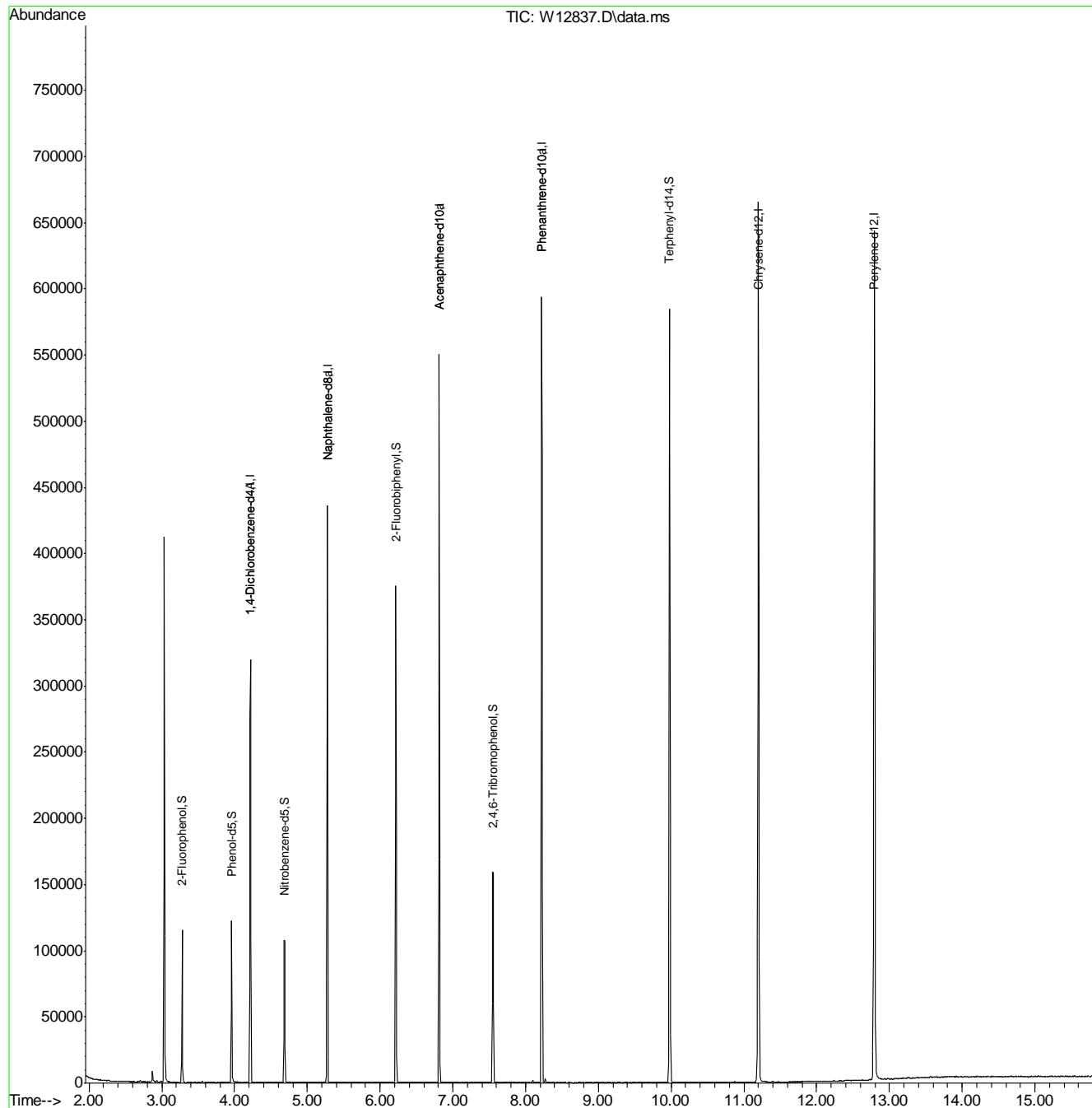
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.219	152	50077	40.00	ppm	0.00
21) 1,4-Dichlorobenzene-d4A	4.219	152	50077	40.00	PPM	#-0.05
23) Naphthalene-d8	5.277	136	181941	40.00	ppm	0.00
41) Naphthalene-d8a	5.277	136	181941	40.00	ppm	#-0.05
43) Acenaphthene-d10	6.816	164	124555	40.00	ppm	0.00
65) Acenaphthene-d10a	6.816	164	124555	40.00	ppm	#-0.05
67) Phenanthrene-d10	8.221	188	236695	40.00	ppm	0.00
80) Phenanthrene-d10a	8.221	188	236657m	40.00	ppm	-0.04
82) Chrysene-d12	11.202	240	306272	40.00	ppm	0.00
92) Perylene-d12	12.794	264	310143	40.00	ppm	0.00
<hr/>						
System Monitoring Compounds						
5) 2-Fluorophenol	3.279	112	31399	23.16	ppm	0.02
Spiked Amount 100.000	Range 30 - 130		Recovery = 23.16%#			
7) Phenol-d5	3.957	99	37716	22.82	ppm	0.01
Spiked Amount 100.000	Range 30 - 130		Recovery = 22.82%#			
24) Nitrobenzene-d5	4.684	82	30766	22.90	ppm	0.00
Spiked Amount 50.000	Range 30 - 130		Recovery = 45.80%			
48) 2-Fluorobiphenyl	6.217	172	108551	25.39	ppm	0.00
Spiked Amount 50.000	Range 30 - 130		Recovery = 50.78%			
71) 2,4,6-Tribromophenol	7.553	330	27815	29.14	ppm	0.00
Spiked Amount 100.000	Range 30 - 130		Recovery = 29.14%#			
85) Terphenyl-d14	9.978	244	250495	35.48	ppm	0.00
Spiked Amount 50.000	Range 30 - 130		Recovery = 70.96%			
<hr/>						
Target Compounds				Qvalue		
<hr/>						

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130605\
 Data File : W12837.D
 Acq On : 5 Jun 2013 10:41 am
 Operator : kristinr
 Sample : OP33459-MB
 Misc : OP33459,MSW591,20.49,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 06 15:26:57 2013
 Quant Method : C:\msdchem\1\methods\W130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu Jun 06 09:42:09 2013
 Response via : Initial Calibration





GC Volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33357-MB	YZ80872.D	1	05/30/13	CZ	05/28/13	OP33357	GYZ7155

The QC reported here applies to the following samples:

Method: SW846 8011

JB37699-1, JB37699-2

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	2.4	0.94	ug/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	Bromofluorobenzene (S)	137%
460-00-4	Bromofluorobenzene (S)	100% 61-167%

Blank Spike Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33357-BS	YZ80885.D	1	05/30/13	CZ	05/28/13	OP33357	GYZ7155

The QC reported here applies to the following samples:

Method: SW846 8011

JB37699-1, JB37699-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
106-93-4	1,2-Dibromoethane	33	44.2	134	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	127%	61-167%
460-00-4	Bromofluorobenzene (S)	89%	61-167%

11.2.1
11

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33357-MS	YZ80883.D	1	05/30/13	CZ	05/28/13	OP33357	GYZ7155
OP33357-MSD	YZ80884.D	1	05/30/13	CZ	05/28/13	OP33357	GYZ7155
JB37622-1	YZ80874.D	1	05/30/13	CZ	05/28/13	OP33357	GYZ7155

The QC reported here applies to the following samples:

Method: SW846 8011

JB37699-1, JB37699-2

CAS No.	Compound	JB37622-1		Spike	MS	MS	MSD	MSD	RPD	Limits Rec/RPD
		ug/kg	Q	ug/kg	ug/kg	%	ug/kg	%		
106-93-4	1,2-Dibromoethane	ND		40.2	53.0	132	56.4	139	6	48-141/27
CAS No.	Surrogate Recoveries		MS	MSD		JB37622-1	Limits			
460-00-4	Bromofluorobenzene (S)		128%	138%		129%	61-167%			
460-00-4	Bromofluorobenzene (S)		82%	89%		86%	61-167%			

* = Outside of Control Limits.

11.3.1
11

Volatile Surrogate Recovery Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Method: SW846 8011

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
JB37699-1	YZ80878.D	146.0	120.0
JB37699-2	YZ80879.D	158.0	103.0
OP33357-BS	YZ80885.D	127.0	89.0
OP33357-MB	YZ80872.D	137.0	100.0
OP33357-MS	YZ80883.D	128.0	82.0
OP33357-MSD	YZ80884.D	138.0	89.0

Surrogate
Compounds

Recovery
Limits

S1 = Bromofluorobenzene (S) 61-167%

- (a) Recovery from GC signal #2
- (b) Recovery from GC signal #1

11.4.1
11

GC Surrogate Retention Time Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	GYZ7155-ICC7155	Injection Date:	05/30/13
Lab File ID:	YZ80867.D	Injection Time:	13:17
Instrument ID:	GCYZ	Method:	SW846 8011

S1 ^a
RT S1 ^b
RT

Check Std	4.01	3.81
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP33357-MB	YZ80872.D	05/30/13	15:33	4.01	3.81
JB37622-1	YZ80874.D	05/30/13	16:28	4.01	3.81
ZZZZZZ	YZ80875.D	05/30/13	16:55	4.01	3.81
ZZZZZZ	YZ80876.D	05/30/13	17:22	4.01	3.81

Surrogate Compounds

S1 = Bromofluorobenzene (S)

- (a) Retention time from GC signal #2
- (b) Retention time from GC signal #1

11.5.1
11

GC Surrogate Retention Time Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	GYZ7155-CC7155	Injection Date:	05/30/13
Lab File ID:	YZ80877.D	Injection Time:	17:49
Instrument ID:	GCYZ	Method:	SW846 8011

S1 ^a
RT S1 ^b
RT

Check Std	4.01	3.81
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
JB37699-1	YZ80878.D	05/30/13	18:17	4.01	3.80
JB37699-2	YZ80879.D	05/30/13	19:05	4.00	3.81
ZZZZZZ	YZ80880.D	05/30/13	19:32	4.01	3.81
ZZZZZZ	YZ80881.D	05/30/13	19:59	4.01	3.81
ZZZZZZ	YZ80882.D	05/30/13	20:26	4.01	3.80
OP33357-MS	YZ80883.D	05/30/13	20:52	4.00	3.80
OP33357-MSD	YZ80884.D	05/30/13	21:20	4.00	3.80
OP33357-BS	YZ80885.D	05/30/13	21:47	4.01	3.80
GYZ7155-ECC715Y	YZ80886.D	05/30/13	22:13	4.00	3.80

Surrogate
Compounds

S1 = Bromofluorobenzene (S)

- (a) Retention time from GC signal #2
(b) Retention time from GC signal #1

11.5.2
11

Initial Calibration Summary

Job Number: JB37699

Sample: GYZ7155-ICC7155

Account: ALNJ Accutest New Jersey

Lab FileID: YZ80867.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Response Factor Report GCY2

Method : C:\msdchem\1\METHODS\Es130330.M (RTE Integrator)

Title : EDB /pest2/pest

Last Update : Thu May 30 15:02:08 2013

Response via : Initial Calibration

Calibration Files

1	=yz80865.D	2	=yz80866.D	3	=yz80867.D	4	=yz80868.D
5	=yz80869.D	6	=yz80870.D				

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	1,2-Dibromoethane	6.948	6.934	7.020	7.197	6.262	5.550	6.652 E3	9.43
2)	s 4-Bromofluorobenzen	0.496	0.566	0.685	0.968	1.539	2.374	1.105 E3	65.95
	----- Quadratic regression -----							Coefficient =	0.9967
	Response Ratio =	9649.25251	+ 529.65085	*A	+ -0.43017	*A^2			
3)	1,2-Dibromo-3-chlor	1.390	1.366	1.381	1.419	1.459	1.520	1.423 E4	4.08

Signal #2

1)	1,2-Dibromoethane	7.347	7.827	7.977	8.501	8.406	8.126	8.031 E3	5.23
2)	s 4-Bromofluorobenzen	4.859	5.213	5.702	6.229	7.483	9.296	6.464 E2	25.73
	----- Quadratic regression -----							Coefficient =	0.9999
	Response Ratio =	2020.15551	+ 542.10132	*A	+ -0.33809	*A^2			

3)	1,2-Dibromo-3-chlor	1.488	1.489	1.527	1.598	1.668	1.741	1.585 E4	6.53
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(#= Out of Range)

Es130330.M

Thu May 30 15:26:56 2013

11.6.1

Initial Calibration Verification

Job Number: JB37699

Sample: GYZ7155-ICV7155

Account: ALNJ Accutest New Jersey

Lab FileID: YZ80871.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\yz...30\yz80871.D\ECD1A.CH Vial: 97
 Acq On : 30 May 2013 3:06 pm Operator: caobinz
 Sample : icv7155-20.edb 20-icv Inst : GCYZ
 Misc : op33357,gyz7155,30,,,50,,soil Multiplr: 1.00
 IntFile : rteint.p

Data File : C:\msdchem\1\DATA\yz130530\yz80871.D\ECD2B.CH Vial: 97
 Acq On : 30 May 2013 3:06 pm Operator: caobinz
 Sample : edb 20-icv Inst : GCYZ
 Misc : op33357,gyz7155,30,,,50,,soil Multiplr: 1.00
 IntFile : rteint2.p

Method : C:\msdchem\1\METHODS\Es130330.M (RTE Integrator)
 Title : EDB /pest2/pest
 Last Update : Thu May 30 15:02:08 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
 Max. RRF Dev : 15% Max. Rel. Area : 115%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	6.652	6.781 E3	-1.9	98	0.00	2.66-	2.72
2 s	4-Bromofluorobenzene	100.000	90.926	9.1	96	0.00	3.77-	3.83
3	1,2-Dibromo-3-chloropr	14.227	13.248 E3	6.9	97	0.00	5.60-	5.66
***** Signal #2 *****								
1	1,2-Dibromoethane	8.031	8.246 E3	-2.7	105	0.00	2.70-	2.76
2 s	4-Bromofluorobenzene	100.000	101.609	-1.6	103	0.00	3.98-	4.04
3	1,2-Dibromo-3-chloropr	15.850	14.946 E3	5.7	100	0.00	5.51-	5.57

(#) = Out of Range
 yz80866.D Es130330.M

SPCC's out = 0 CCC's out = 0
 Thu May 30 15:26:31 2013

Continuing Calibration Summary

Job Number: JB37699

Sample: GYZ7155-CC7155

Account: ALNJ Accutest New Jersey

Lab FileID: YZ80877.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\yz...30\yz80877.D\ECD1A.CH Vial: 92
 Acq On : 30 May 2013 5:49 pm Operator: caobinz
 Sample : CC7155-20,edb 20 Inst : GCYZ
 Misc : op33357,gyz7155,30.31,,,50,,soil Multiplr: 1.00
 IntFile : rteint.p

Data File : C:\msdchem\1\DATA\yz130530\yz80877.D\ECD2B.CH Vial: 92
 Acq On : 30 May 2013 5:49 pm Operator: caobinz
 Sample : edb 20 Inst : GCYZ
 Misc : op33357,gyz7155,30.31,,,50,,soil Multiplr: 1.00
 IntFile : rteint2.p

Method : C:\msdchem\1\METHODS\Es130330.M (RTE Integrator)
 Title : EDB /pest2/pest
 Last Update : Thu May 30 15:02:08 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
 Max. RRF Dev : 15% Max. Rel. Area : 115%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	6.652	7.064 E3	-6.2	102	0.00	2.66-	2.72
2 s	4-Bromofluorobenzene	100.000	89.659	10.3	95	0.00	3.78-	3.84
3	1,2-Dibromo-3-chloropr	14.227	14.239 E3	-0.1	104	0.00	5.60-	5.66
***** Signal #2 *****								
1	1,2-Dibromoethane	8.031	8.608 E3	-7.2	110	0.00	2.70-	2.76
2 s	4-Bromofluorobenzene	100.000	106.234	-6.2	107	0.00	3.98-	4.04
3	1,2-Dibromo-3-chloropr	15.850	16.325 E3	-3.0	110	0.00	5.51-	5.57

(#) = Out of Range
 yz80866.D Es130330.M

SPCC's out = 0 CCC's out = 0
 Thu May 30 18:28:36 2013

Continuing Calibration Summary

Page 1 of 1

Job Number: JB37699

Sample: GYZ7155-ECC7155

Account: ALNJ Accutest New Jersey

Lab FileID: YZ80886.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : T:\1\DATA\yz130530\yz80886.D\ECD1A.CH Vial: 92
Acq On : 30 May 2013 10:13 pm Operator: caobinz
Sample : ecc7155-20,edb 20 Inst : GCYZ
Misc : op33357,gyz7155,30.31,,,50,,soil Multiplr: 1.00
IntFile : rteint.p

Data File : T:\1\DATA\yz130530\yz80886.D\ECD2B.CH Vial: 92
Acq On : 30 May 2013 10:13 pm Operator: caobinz
Sample : edb 20 Inst : GCYZ
Misc : op33357,gyz7155,30.31,,,50,,soil Multiplr: 1.00
IntFile : rteint2.p

Method : T:\1\METHODS\Es130330.M (RTE Integrator)
Title : EDB /pest2/pest
Last Update : Thu May 30 15:02:08 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 115%

	Compound	AvgRF	CCRF	%Dev	Area	% Dev(min)	RT	Window
1	1,2-Dibromoethane	6.652	7.068 E3	-6.3	102	0.00	2.66-	2.72
2 s	4-Bromofluorobenzene	100.000	91.370	8.6	96	0.00	3.77-	3.83
3	1,2-Dibromo-3-chloropr	14.227	14.537 E3	-2.2	106	0.00	5.60-	5.66
***** Signal #2 *****								
1	1,2-Dibromoethane	8.031	8.950 E3	-11.4	114	0.00	2.70-	2.76
2 s	4-Bromofluorobenzene	100.000	109.828	-9.8	110	0.00	3.97-	4.03
3	1,2-Dibromo-3-chloropr	15.850	16.969 E3	-7.1	114	0.00	5.51-	5.57

(#) = Out of Range
yz80886.D Es130330.M

SPCC's out = 0 CCC's out = 0
Fri May 31 09:46:53 2013

11.6.4

11



GC Volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

Manual Integrations
APPROVED
(compounds with "m" flag)
Andri Piluri
06/04/13 09:20

Data Path : T:\1\DATA\yz130530\
 Data File : yz80878.D
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 30 May 2013 6:17 pm
 Operator : caobinz
 Sample : jb37699-1
 Misc : op33357,gyz7155,30.31,,,50,,soil
 ALS Vial : 8 Sample Multiplier: 1

Integration File signal 1: rteint.p
 Integration File signal 2: rteint2.p
 Quant Time: May 31 09:40:55 2013
 Quant Method : T:\1\METHODS\Es130330.M
 Quant Title : EDB /pest2/pest
 QLast Update : Thu May 30 15:02:08 2013
 Response via : Initial Calibration
 Integrator: RTE 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
----------	------	------	--------	--------	------	------

System Monitoring Compounds
 2) s 4-Bromofl... 3.804 4.006 39923 39875 60.091m 73.169
 Spiked Amount 50.000 Range 40 - 168 Recovery = 120.18% 146.34%

Target Compounds
 1) 1,2-Dibro... 0.000 0.000 0 N.D. d N.D. d
 3) 1,2-Dibro... 0.000 0.000 0 N.D. d N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

12.1.1

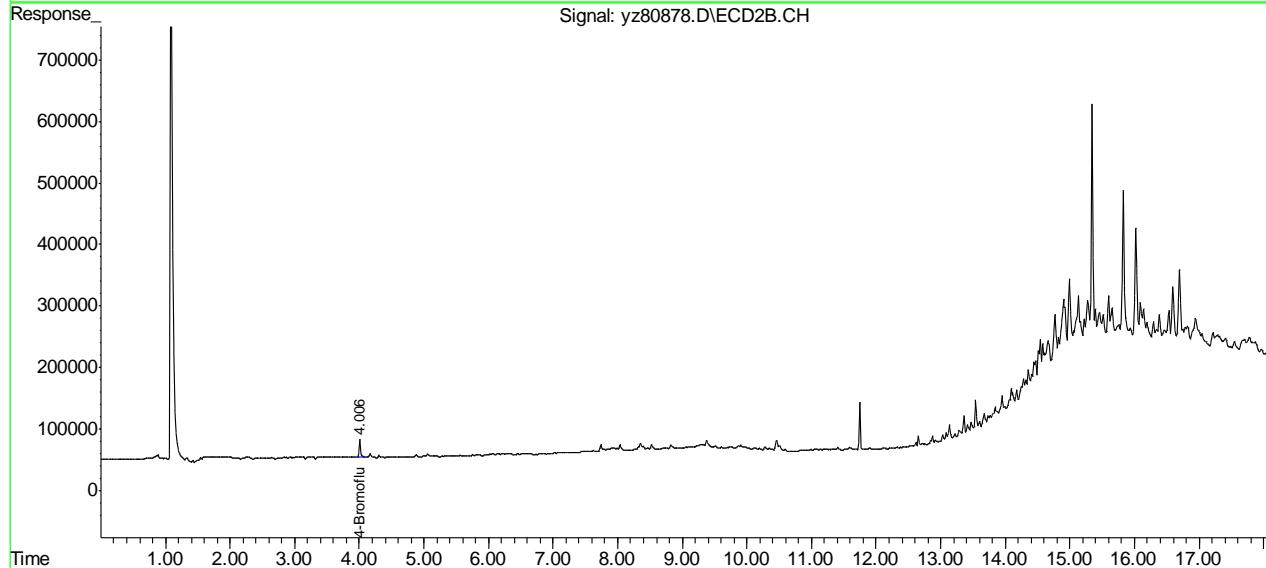
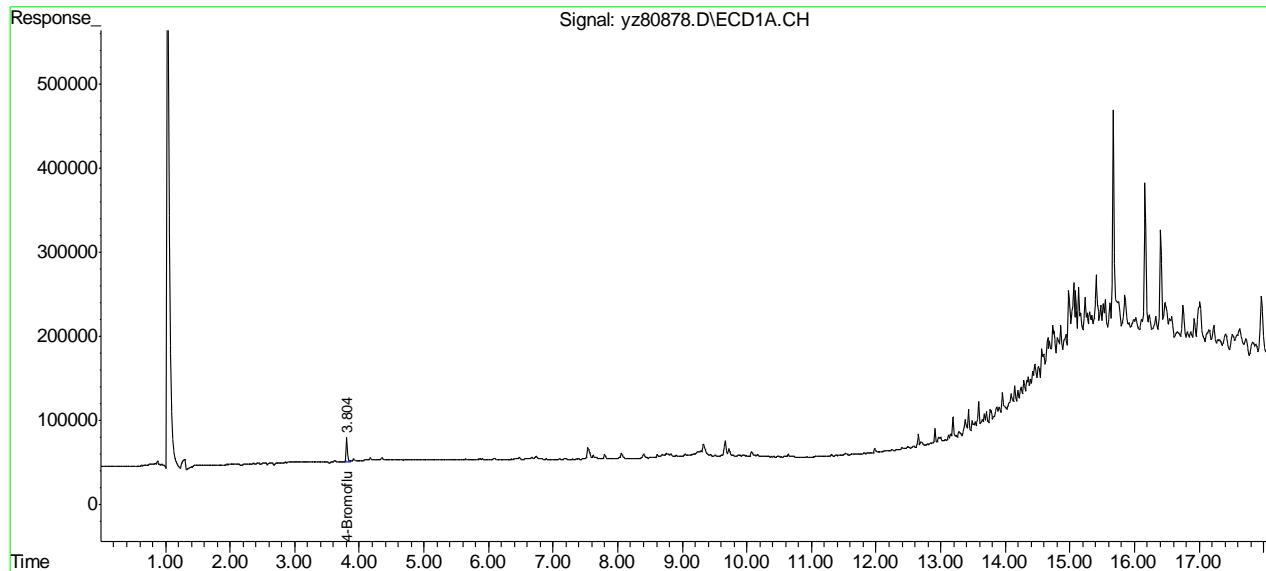
12

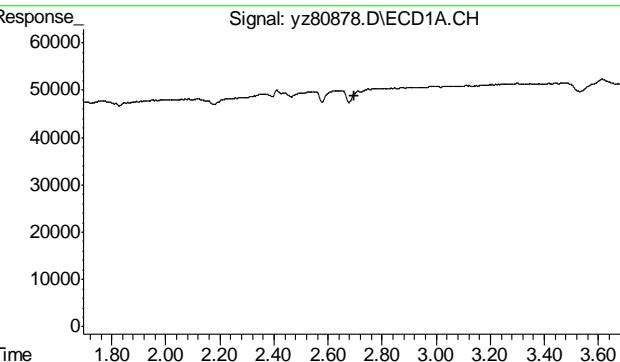
Quantitation Report (QT Reviewed)

Data Path : T:\1\DATA\yz130530\
 Data File : yz80878.D
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 30 May 2013 6:17 pm
 Operator : caobinz
 Sample : jb37699-1
 Misc : op33357,gyz7155,30.31,,,50,,soil
 ALS Vial : 8 Sample Multiplier: 1

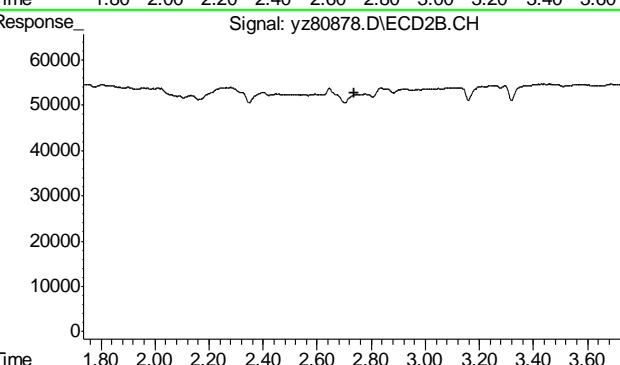
Integration File signal 1: rteint.p
 Integration File signal 2: rteint2.p
 Quant Time: May 31 09:40:55 2013
 Quant Method : T:\1\METHODS\Es130330.M
 Quant Title : EDB /pest2/pest
 QLast Update : Thu May 30 15:02:08 2013
 Response via : Initial Calibration
 Integrator: RTE 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

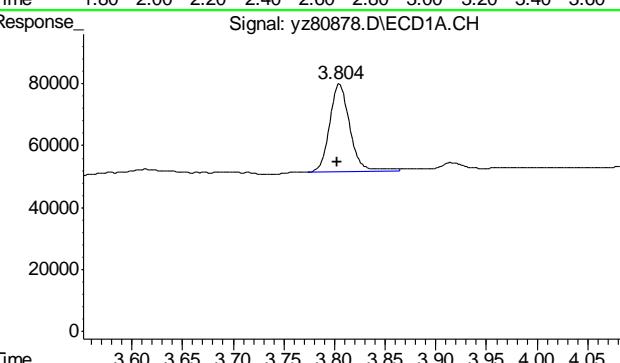




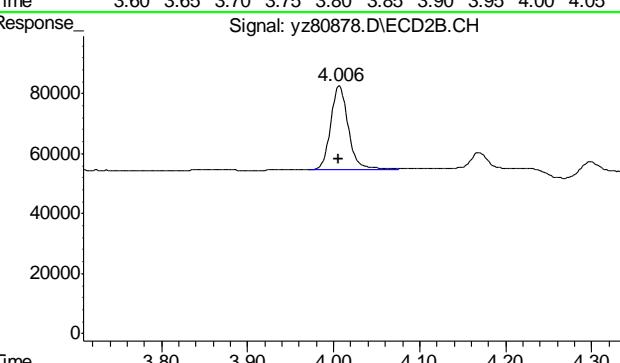
#1 1,2-Dibromoethane
R.T.: 0.000 min
Exp R.T.: 2.695 min
Response: 0
Conc: N.D.



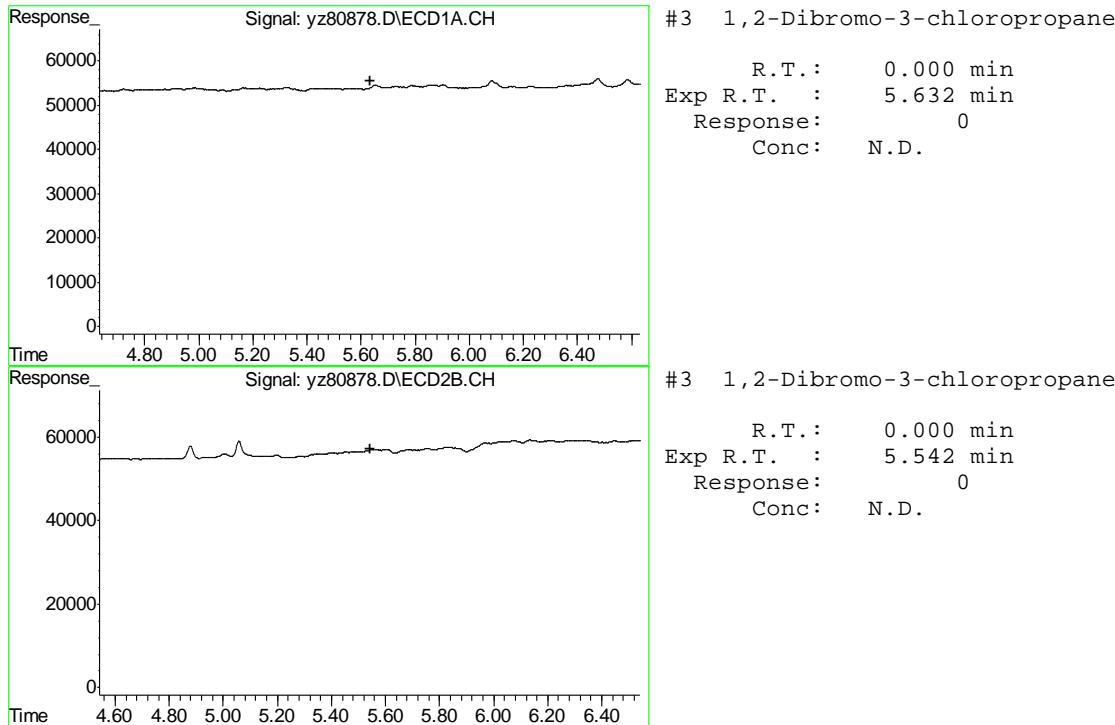
#1 1,2-Dibromoethane
R.T.: 0.000 min
Exp R.T.: 2.735 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene
R.T.: 3.804 min
Delta R.T.: 0.000 min
Response: 39923
Conc: 60.09 ug/L m



#2 4-Bromofluorobenzene
R.T.: 4.006 min
Delta R.T.: 0.000 min
Response: 39875
Conc: 73.17 ug/L



12.1.1

12

Quantitation Report (QT Reviewed)

Data Path : T:\1\DATA\yz130530\
 Data File : yz80879.D
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 30 May 2013 7:05 pm
 Operator : caobinz
 Sample : jb37699-2
 Misc : op33357,gyz7155,30.75,,,50,,soil
 ALS Vial : 9 Sample Multiplier: 1

Integration File signal 1: rteint.p
 Integration File signal 2: rteint2.p
 Quant Time: May 31 09:41:05 2013
 Quant Method : T:\1\METHODS\Es130330.M
 Quant Title : EDB /pest2/pest
 QLast Update : Thu May 30 15:02:08 2013
 Response via : Initial Calibration
 Integrator: RTE 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
----------	------	------	--------	--------	------	------

System Monitoring Compounds
 2) s 4-Bromofl... 3.807 4.004 35775 42713 51.479 78.953 #
 Spiked Amount 50.000 Range 40 - 168 Recovery = 102.96% 157.91%

Target Compounds
 1) 1,2-Dibro... 0.000 0.000 0 N.D. d N.D. d
 3) 1,2-Dibro... 0.000 0.000 0 N.D. d N.D. d

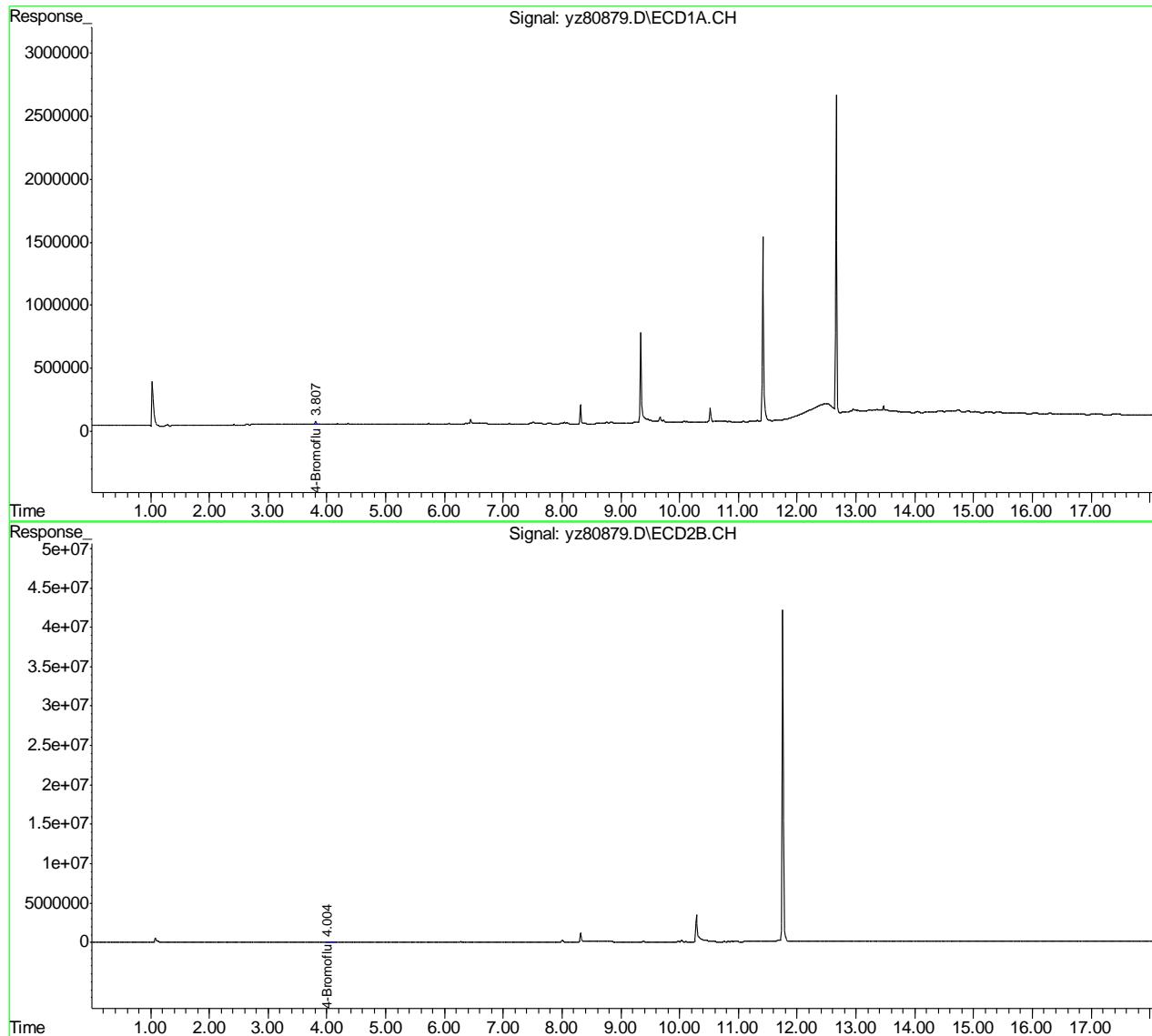
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

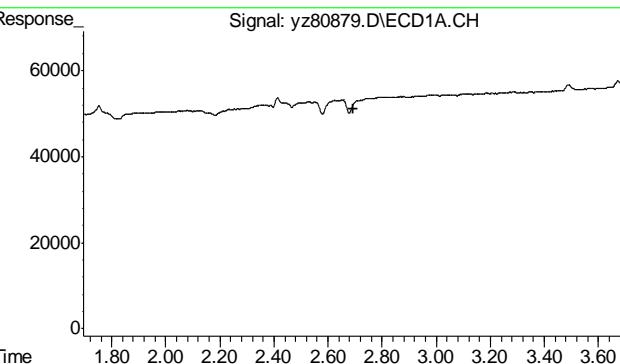
Quantitation Report (QT Reviewed)

Data Path : T:\1\DATA\yz130530\
 Data File : yz80879.D
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 30 May 2013 7:05 pm
 Operator : caobinz
 Sample : jb37699-2
 Misc : op33357,gyz7155,30.75,,,50,,soil
 ALS Vial : 9 Sample Multiplier: 1

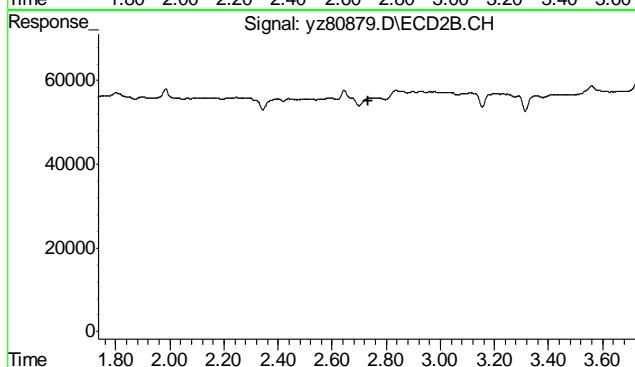
Integration File signal 1: rteint.p
 Integration File signal 2: rteint2.p
 Quant Time: May 31 09:41:05 2013
 Quant Method : T:\1\METHODS\Es130330.M
 Quant Title : EDB /pest2/pest
 QLast Update : Thu May 30 15:02:08 2013
 Response via : Initial Calibration
 Integrator: RTE 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

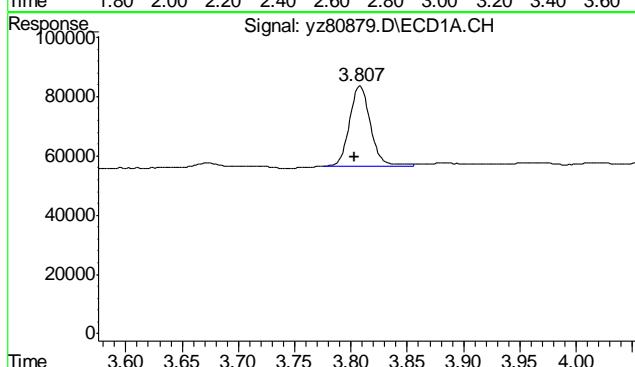




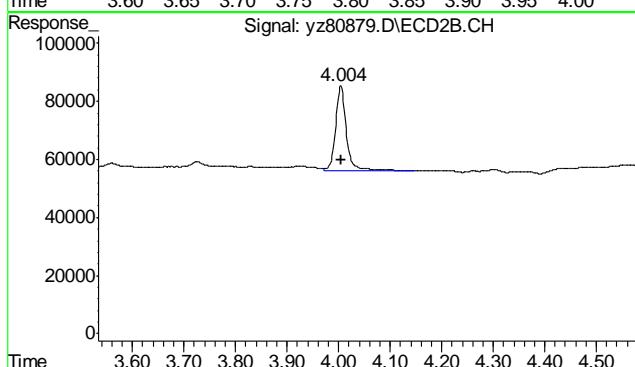
#1 1,2-Dibromoethane
R.T.: 0.000 min
Exp R.T.: 2.695 min
Response: 0
Conc: N.D.



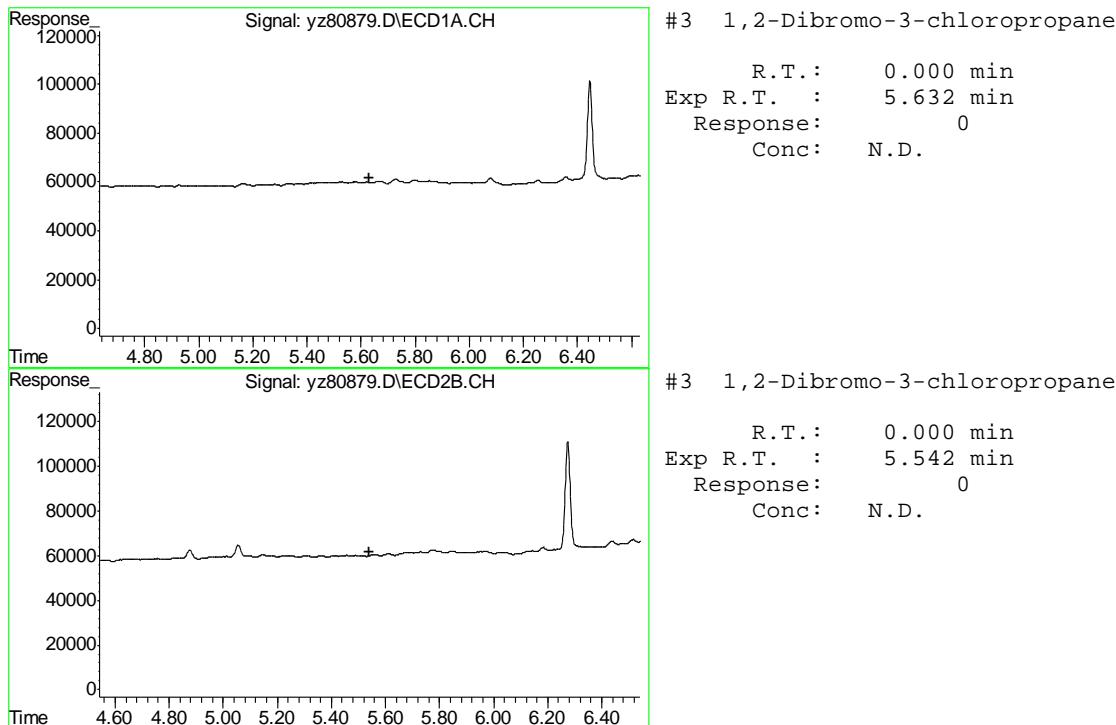
#1 1,2-Dibromoethane
R.T.: 0.000 min
Exp R.T.: 2.735 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene
R.T.: 3.807 min
Delta R.T.: 0.004 min
Response: 35775
Conc: 51.48 ug/L



#2 4-Bromofluorobenzene
R.T.: 4.004 min
Delta R.T.: -0.002 min
Response: 42713
Conc: 78.95 ug/L



12.1.2

12

Quantitation Report (QT Reviewed)

Manual Integrations
APPROVED
(compounds with "m" flag)

Andri Piluri
05/31/13 09:21

Data Path : C:\msdchem\1\DATA\yz130530\
Data File : yz80872.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 30 May 2013 3:33 pm
Operator : caobinz
Sample : op33357-mb
Misc : op33357,gyz7155,30.86,,,50,,soil
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: rteint.p
Integration File signal 2: rteint2.p
Quant Time: May 30 15:54:35 2013
Quant Method : C:\msdchem\1\METHODS\Es130330.M
Quant Title : EDB /pest2/pest
QLast Update : Thu May 30 15:02:08 2013
Response via : Initial Calibration
Integrator: RTE 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L
----------	------	------	--------	--------	------	------

System Monitoring Compounds
2) s 4-Bromofl... 3.806 4.008 34948 37459 49.777m 68.281m#
Spiked Amount 50.000 Range 40 - 168 Recovery = 99.55% 136.56%

Target Compounds
1) 1,2-Dibro... 0.000 0.000 0 N.D. d N.D. d
3) 1,2-Dibro... 0.000 0.000 0 N.D. d N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

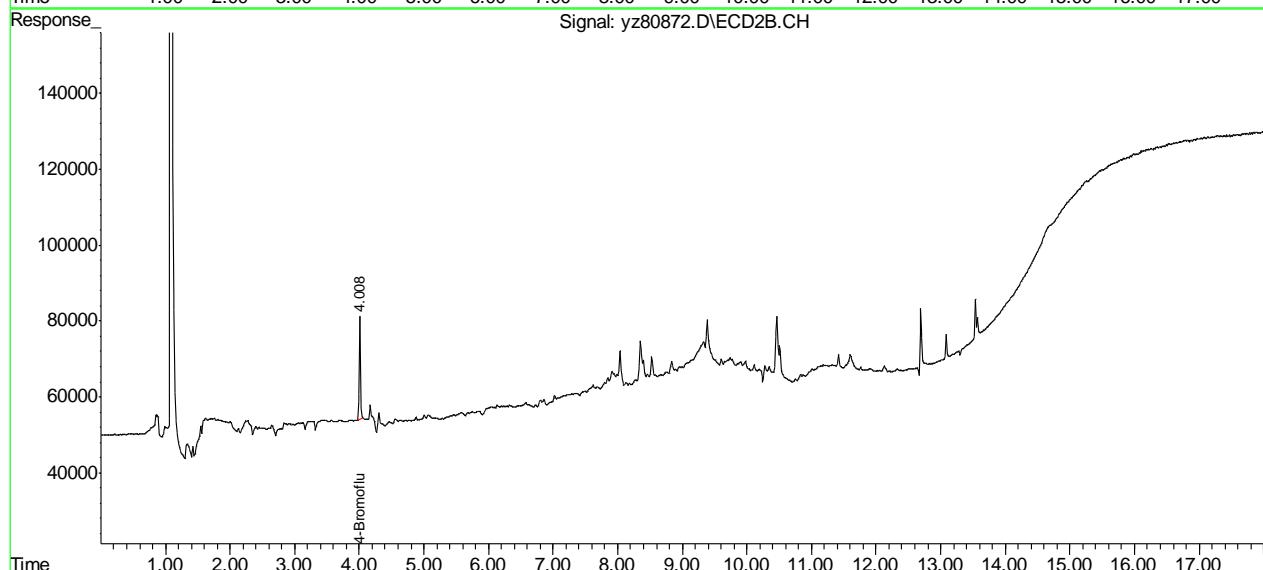
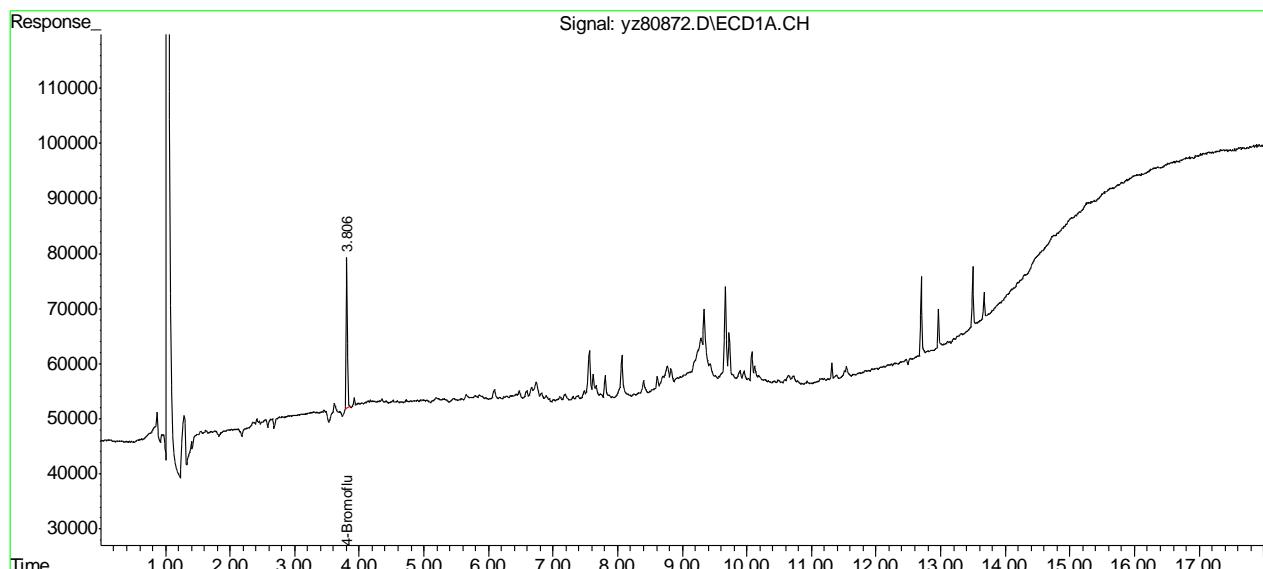
12.2.1
12

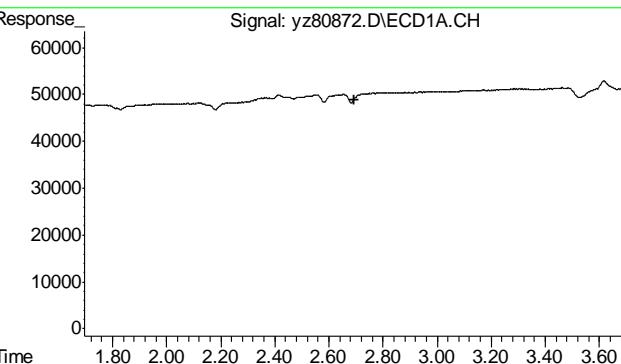
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\yz130530\
 Data File : yz80872.D
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 30 May 2013 3:33 pm
 Operator : caobinz
 Sample : op33357-mb
 Misc : op33357,gyz7155,30.86,,,50,,soil
 ALS Vial : 1 Sample Multiplier: 1

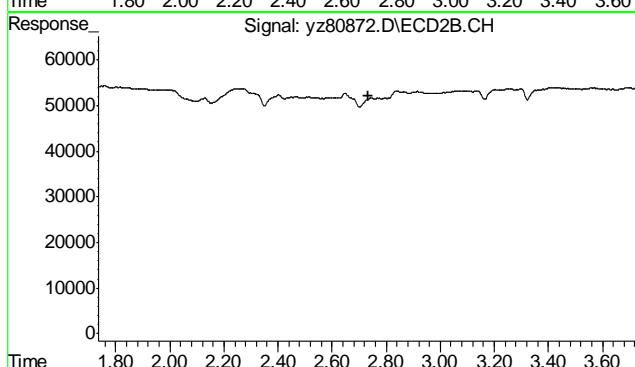
Integration File signal 1: rteint.p
 Integration File signal 2: rteint2.p
 Quant Time: May 30 15:54:35 2013
 Quant Method : C:\msdchem\1\METHODS\Es130330.M
 Quant Title : EDB /pest2/pest
 QLast Update : Thu May 30 15:02:08 2013
 Response via : Initial Calibration
 Integrator: RTE 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

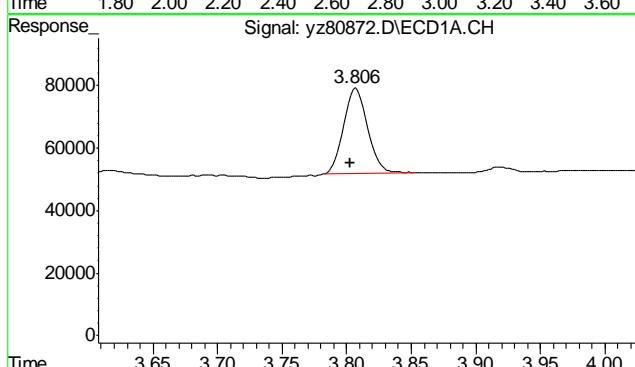




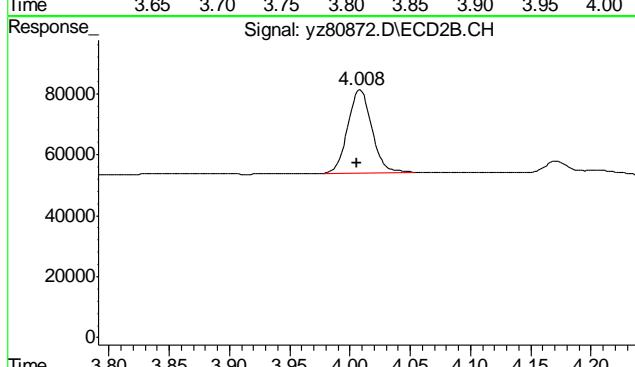
#1 1,2-Dibromoethane
R.T.: 0.000 min
Exp R.T.: 2.695 min
Response: 0
Conc: N.D.



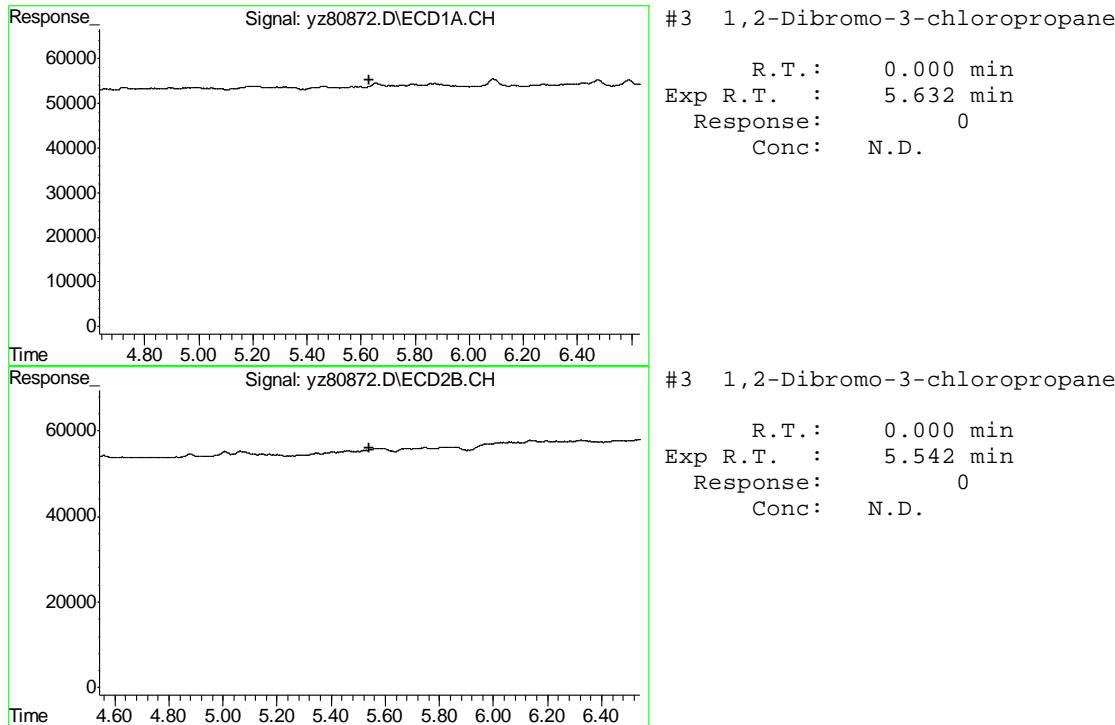
#1 1,2-Dibromoethane
R.T.: 0.000 min
Exp R.T.: 2.735 min
Response: 0
Conc: N.D.



#2 4-Bromofluorobenzene
R.T.: 3.806 min
Delta R.T.: 0.003 min
Response: 34948
Conc: 49.78 ug/L m



#2 4-Bromofluorobenzene
R.T.: 4.008 min
Delta R.T.: 0.002 min
Response: 37459
Conc: 68.28 ug/L m



12.2.1

12



Metals Analysis

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

Date Analyzed: 05/31/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15689

Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:18	MA15689-STD1	1		STD1
17:22	MA15689-STD2	1		STD2
17:26	MA15689-STD3	1		STD3
17:31	MA15689-STD4	1		STD4
17:35	MA15689-ICV1	1		
17:42	MA15689-ICB1	1		
17:46	MA15689-CCV1	1		
17:56	MA15689-CCB1	1		
18:00	MA15689-CRIA1	1		
18:05	MA15689-ICSA1	1		
18:09	MA15689-ICSAB1	1		
18:15	MP21088-B1	1		
18:19	MP21088-MB1	1		
18:23	MP21088-S1	1		MS OUT FOR SB, NEED PS; CA OVER RANGE.
18:28	MP21088-S2	1		CA OVER RANGE.
18:32	MC21154-2	1		(sample used for QC only; not part of login JB37699)
18:36	MP21088-SD1	5		
18:41	MP21088-LC1	1		
18:45	MA15689-CCV2	1		
18:59	MA15689-CCB2	1		
19:04	ZZZZZZ	1		
19:08	ZZZZZZ	1		
19:12	ZZZZZZ	1		
19:17	ZZZZZZ	1		
19:21	ZZZZZZ	1		
19:26	ZZZZZZ	1		
19:30	ZZZZZZ	1		
19:35	ZZZZZZ	1		
19:39	ZZZZZZ	1		
19:43	ZZZZZZ	1		
19:48	MA15689-CCV3	1		
19:52	MA15689-CCB3	1		
19:56	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

Date Analyzed: 05/31/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15689

Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:01	ZZZZZZ	1		
20:05	ZZZZZZ	1		
20:10	ZZZZZZ	1		
20:14	ZZZZZZ	1		
20:19	ZZZZZZ	1		
20:23	ZZZZZZ	1		
20:27	ZZZZZZ	1		
20:32	ZZZZZZ	1		
20:36	MP21094-B1	1		
20:40	MA15689-CCV4	1		
20:44	MA15689-CCB4	1		
20:49	MP21094-MB1	1		
20:53	MP21094-S1	1		
20:58	MP21094-S2	1		
21:02	MC21154-8	1		(sample used for QC only; not part of login JB37699)
21:07	MP21094-SD1	5		
21:11	MP21094-B2	1		
21:15	MP21094-LC1	1		
21:19	JB37699-1	1		
21:24	JB37699-2	1		
-----> Last reportable sample/prep for job JB37699				
21:28	ZZZZZZ	1		
21:33	MA15689-CCV5	1		
21:37	MA15689-CCB5	1		
21:41	ZZZZZZ	1		
21:46	ZZZZZZ	1		
21:50	ZZZZZZ	1		
21:55	ZZZZZZ	1		
21:59	ZZZZZZ	1		
22:03	ZZZZZZ	1		
22:08	ZZZZZZ	1		
22:12	ZZZZZZ	1		
22:16	ZZZZZZ	1		
22:21	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

Date Analyzed: 05/31/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15689

Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
22:25	MA15689-CCV6	1		
22:29	MA15689-CCB6	1		
22:33	ZZZZZZ	1		
22:38	ZZZZZZ	1		
22:43	ZZZZZZ	1		
22:47	ZZZZZZ	1		
22:51	ZZZZZZ	1		
22:56	ZZZZZZ	1		
23:00	ZZZZZZ	1		RINSECONF
23:04	MA15689-CRIA2	1		
23:09	MA15689-ICSA2	1		
23:13	MA15689-ICSAB2	1		
23:17	MA15689-CCV7	1		
23:22	MA15689-CCB7	1		

-----> Last reportable CCB for job JB37699
Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

Date Analyzed: 05/31/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15689

Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
17:18	MA15689-STD1	2431 R	59200 R	14010 R
17:22	MA15689-STD2	2395	58130	14116
17:26	MA15689-STD3			14215
17:31	MA15689-STD4	2448	59218	14042
17:35	MA15689-ICV1	2422	58254	14121
17:42	MA15689-ICB1	2423	59280	14161
17:46	MA15689-CCV1	2421	58223	14171
17:56	MA15689-CCB1	2425	58642	13839
18:00	MA15689-CRIA1	2442	59133	14192
18:05	MA15689-ICSA1	2222	55287	13810
18:09	MA15689-ICSAB1	2236	55039	13705
18:15	MP21088-B1	2397	58848	14280
18:19	MP21088-MB1	2419	59052	14108
18:23	MP21088-S1	2303	58911	14579
18:28	MP21088-S2	2272	58323	14449
18:32	MC21154-2	2267	58361	14403
18:36	MP21088-SD1	2331	57720	14104
18:41	MP21088-LC1	2551	62370	15365
18:45	MA15689-CCV2	2397	57997	14137
18:59	MA15689-CCB2	2406	58772	14030
19:04	ZZZZZZ	2348	59658	14842
19:08	ZZZZZZ	2358	60053	15018
19:12	ZZZZZZ	2573	63043	15379
19:17	ZZZZZZ	2321	59723	14567
19:21	ZZZZZZ	2439	61823	15163
19:26	ZZZZZZ	2233	58463	14238
19:30	ZZZZZZ	2497	62007	15325
19:35	ZZZZZZ	2324	59629	14551
19:39	ZZZZZZ	2583	64035	15804
19:43	ZZZZZZ	2300	58460	14421
19:48	MA15689-CCV3	2377	57971	14120
19:52	MA15689-CCB3	2382	58119	13910
19:56	ZZZZZZ	2297	58160	14564

INTERNAL STANDARD SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

Date Analyzed: 05/31/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15689

Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
20:01	ZZZZZZ	2651	64944	15843
20:05	ZZZZZZ	2375	59958	15133
20:10	ZZZZZZ	2583	63332	15582
20:14	ZZZZZZ	2298	58643	14453
20:19	ZZZZZZ	2308	58905	14660
20:23	ZZZZZZ	2626	64168	15643
20:27	ZZZZZZ	2566	64037	15961
20:32	ZZZZZZ	2445	60862	14962
20:36	MP21094-B1	2402	58396	14306
20:40	MA15689-CCV4	2421	59137	14281
20:44	MA15689-CCB4	2425	59150	14179
20:49	MP21094-MB1	2423	59159	14323
20:53	MP21094-S1	2456	61337	15362
20:58	MP21094-S2	2329	58958	14810
21:02	MC21154-8	2444	61992	15301
21:07	MP21094-SD1	2406	58529	14546
21:11	MP21094-B2	2397	58490	14128
21:15	MP21094-LC1	2604	63432	15598
21:19	JB37699-1	2430	62050	15099
21:24	JB37699-2	2656	64484	16018
21:28	ZZZZZZ	2695	65341	16085
21:33	MA15689-CCV5	2412	58308	14157
21:37	MA15689-CCB5	2402	58555	14081
21:41	ZZZZZZ	2634	64454	15805
21:46	ZZZZZZ	2461	62322	15646
21:50	ZZZZZZ	2481	62881	15731
21:55	ZZZZZZ	2510	61609	14904
21:59	ZZZZZZ	2526	61832	14920
22:03	ZZZZZZ	2507	61291	15017
22:08	ZZZZZZ	2558	62442	15229
22:12	ZZZZZZ	2534	61294	14867
22:16	ZZZZZZ	2964	73226	17946
22:21	ZZZZZZ	2508	61229	14880

INTERNAL STANDARD SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

Date Analyzed: 05/31/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15689

Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
22:25	MA15689-CCV6	2422	58624	14301
22:29	MA15689-CCB6	2398	58577	14024
22:33	ZZZZZZ	2746	69487	17083
22:38	ZZZZZZ	2890	72358	17958
22:43	ZZZZZZ	2683	66770	16771
22:47	ZZZZZZ	2480	60584	14841
22:51	ZZZZZZ	2534	61841	14888
22:56	ZZZZZZ	2539	62130	14921
23:00	ZZZZZZ	2418	59416	14204
23:04	MA15689-CRIA2	2406	59063	14194
23:09	MA15689-ICSA2	2217	55238	13776
23:13	MA15689-ICSAB2	2244	55410	13905
23:17	MA15689-CCV7	2419	59062	14275
23:22	MA15689-CCB7	2420	58910	14229

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB37699
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15689 Units: ug/l

Metal	Time: Sample ID: RL	IDL	17:42 ICB1		17:56 CCB1		18:59 CCB2		19:52 CCB3		final
			raw	final	raw	final	raw	final	raw	final	
Aluminum	200	12	anr								
Antimony	10	1.1	anr								
Arsenic	10	1.7	anr								
Barium	50	.32	anr								
Beryllium	4.0	.1	anr								
Boron	100	1.1	anr								
Cadmium	4.0	.25	anr								
Calcium	5000	21	anr								
Chromium	10	.48	anr								
Cobalt	50	.29	anr								
Copper	25	.93	anr								
Gold	50	1.5									
Iron	100	3.5	anr								
Lead	10	1.2	0.80	<10	0.0	<10	1.4	<10	0.80	<10	
Magnesium	5000	30	anr								
Manganese	15	.16	anr								
Molybdenum	100	.31									
Nickel	40	.45	anr								
Palladium	50	2.2									
Platinum	50	6.4									
Potassium	5000	54	anr								
Selenium	10	1.7	anr								
Silicon	100	2									
Silver	5.0	.81	anr								
Sodium	5000	16	anr								
Strontium	10	.12									
Thallium	10	1.2	anr								
Tin	100	.87									
Titanium	50	.66	anr								
Tungsten	100	9.3									
Vanadium	10	.82	anr								
Zinc	20	.45	anr								
Zirconium	50	.45									

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP
QC Limits: result < RL

Date Analyzed: 05/31/13
Run ID: MA15689

Methods: SW846 6010C
Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB37699
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15689 Units: ug/l

Metal	Time: Sample ID: RL	IDL	20:44 CCB4		21:37 CCB5		22:29 CCB6		23:22 CCB7		final
			raw	final	raw	final	raw	final	raw	final	
Aluminum	200	12	anr								
Antimony	10	1.1	anr								
Arsenic	10	1.7	anr								
Barium	50	.32	anr								
Beryllium	4.0	.1	anr								
Boron	100	1.1	anr								
Cadmium	4.0	.25	anr								
Calcium	5000	21	anr								
Chromium	10	.48	anr								
Cobalt	50	.29	anr								
Copper	25	.93	anr								
Gold	50	1.5									
Iron	100	3.5	anr								
Lead	10	1.2	0.0	<10	0.60	<10	0.0	<10	0.90	<10	
Magnesium	5000	30	anr								
Manganese	15	.16	anr								
Molybdenum	100	.31									
Nickel	40	.45	anr								
Palladium	50	2.2									
Platinum	50	6.4									
Potassium	5000	54	anr								
Selenium	10	1.7	anr								
Silicon	100	2									
Silver	5.0	.81	anr								
Sodium	5000	16	anr								
Strontium	10	.12									
Thallium	10	1.2	anr								
Tin	100	.87									
Titanium	50	.66	anr								
Tungsten	100	9.3									
Vanadium	10	.82	anr								
Zinc	20	.45	anr								
Zirconium	50	.45									

(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP
QC Limits: result < RL

Date Analyzed: 05/31/13
Run ID: MA15689

Methods: SW846 6010C
Units: ug/l

Time:	
Sample ID:	
Metal	

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37699
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15689 Units: ug/l

Metal	Time: Sample ID: Metal	ICV True	17:35 ICV1 Results	CCV True	17:46 CCV1 Results	CCV True	18:45 CCV2 Results	CCV True	18:45 CCV2 Results	CCV True
Aluminum		anr								
Antimony		anr								
Arsenic		anr								
Barium		anr								
Beryllium		anr								
Boron		anr								
Cadmium		anr								
Calcium		anr								
Chromium		anr								
Cobalt		anr								
Copper		anr								
Gold										
Iron		anr								
Lead	3000	2950	98.3	2000	1950	97.5	2000	1970	98.5	
Magnesium		anr								
Manganese		anr								
Molybdenum										
Nickel		anr								
Palladium										
Platinum										
Potassium		anr								
Selenium		anr								
Silicon										
Silver		anr								
Sodium		anr								
Strontium										
Thallium		anr								
Tin										
Titanium		anr								
Tungsten										
Vanadium		anr								
Zinc		anr								
Zirconium										

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

QC Limits: 90 to 110 % Recovery

Date Analyzed: 05/31/13

Run ID: MA15689

Methods: SW846 6010C

Units: ug/l

Time:

Sample ID:

Metal

(anr) Analyte not requested

13.1.3
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37699
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15689 Units: ug/l

Metal	Time: Sample ID: True	19:48 CCV Results	% Rec	CCV True	20:40 CCV4 Results	% Rec	CCV True	21:33 CCV5 Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1960	98.0	2000	1950	97.5	2000	1950	97.5
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium	anr								
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

QC Limits: 90 to 110 % Recovery

Date Analyzed: 05/31/13

Run ID: MA15689

Methods: SW846 6010C

Units: ug/l

Time:

Sample ID:

Metal

(anr) Analyte not requested

13.1.3
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37699
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15689 Units: ug/l

Metal	Time: Sample ID: True	22:25 CCV Results		23:17 CCV Results		% Rec
		CCV6	CCV	CCV7	CCV	
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron	anr					
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Gold						
Iron	anr					
Lead	2000	1930	96.5	2000	1930	96.5
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Palladium						
Platinum						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium	anr					
Tungsten						
Vanadium	anr					
Zinc	anr					
Zirconium						

(*) Outside of QC limits

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

QC Limits: 90 to 110 % Recovery

Date Analyzed: 05/31/13

Run ID: MA15689

Methods: SW846 6010C

Units: ug/l

Time:

Sample ID:

Metal

(anr) Analyte not requested

13.1.3
13

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

Date Analyzed: 05/31/13

Methods: SW846 6010C

QC Limits: CRI 70-130% CRIA 70-130%

Run ID: MA15689

Units: ug/l

Metal	Time:		18:00		23:04				
	Sample ID:	CRI	CRIA	CRIAl	Results	% Rec	CRIA2	Results	% Rec
Aluminum	200	200		anr					
Antimony	6.0	10		anr					
Arsenic	4.0	10		anr					
Barium	50	50		anr					
Beryllium	4.0	4.0		anr					
Boron	100	100		anr					
Cadmium	4.0	4.0		anr					
Calcium	5000	5000		anr					
Chromium	10	10		anr					
Cobalt	50	50		anr					
Copper	25	25		anr					
Gold	50	50							
Iron	100	100		anr					
Lead	5.0	10	10.1	101.0	9.8	98.0			
Magnesium	5000	5000		anr					
Manganese	15	15		anr					
Molybdenum	100	100							
Nickel	40	40		anr					
Palladium	50	50							
Platinum	50	50							
Potassium	5000	5000		anr					
Selenium	10	10		anr					
Silicon	100	100							
Silver	5.0	5.0		anr					
Sodium	5000	5000		anr					
Strontium	10	10							
Thallium	5.0	10		anr					
Tin	100	100							
Titanium	50	50		anr					
Tungsten	100	100							
Vanadium	10	10		anr					
Zinc	20	20		anr					
Zirconium	50	50							

(*) Outside of QC limits

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

Date Analyzed: 05/31/13

Methods: SW846 6010C

QC Limits: CRI 70-130% CRIA 70-130%

Run ID: MA15689

Units: ug/l

Time:

Sample ID:

Metal

(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB37699
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15689 Units: ug/l

Metal	Time:		18:05		18:09		23:09		23:13	
	Sample ID:	ICSA	ICSA	ICSA1 Results	% Rec	ICSA1 Results	% Rec	ICSA2 Results	% Rec	ICSA2 Results
Aluminum	500000	500000	518000	103.6	517000	103.4	517000	103.4	523000	104.6
Antimony	2000	-2.0			2080	104.0	-0.80		2070	103.5
Arsenic	2000	1.3			2070	103.5	0.80		2050	102.5
Barium	500	-0.20			507	101.4	-0.20		503	100.6
Beryllium	500	0.10			474	94.8	0.10		476	95.2
Boron	1000	6.9			1020	102.0	6.0		1010	101.0
Cadmium	1000	0.20			1020	102.0	0.10		1010	101.0
Calcium	500000	500000	461000	92.2	464000	92.8	459000	91.8	465000	93.0
Chromium	500	0.0			492	98.4	0.20		485	97.0
Cobalt	500	1.3			487	97.4	1.5		483	96.6
Copper	500	0.80			511	102.2	1.3		507	101.4
Gold	500	2.7			495	99.0	4.4		490	98.0
Iron	200000	200000	192000	96.0	191000	95.5	190000	95.0	191000	95.5
Lead	1000	1.4			917	91.7	1.7		908	90.8
Magnesium	500000	500000	499000	99.8	498000	99.6	495000	99.0	494000	98.8
Manganese	500	0.50			484	96.8	0.60		480	96.0
Molybdenum	1000	-0.30			972	97.2	-0.40		964	96.4
Nickel	1000	-1.0			890	89.0	-1.0		884	88.4
Palladium	500	-38			490	98.0	-39		487	97.4
Platinum	500	-19			478	95.6	-20		477	95.4
Potassium		40.4			57.2		120		156	
Selenium	2000	0.10			1990	99.5	0.50		1970	98.5
Silicon	2000	37.2			2200	110.0	43.1		2190	109.5
Silver	1000	0.0			1040	104.0	-0.20		1020	102.0
Sodium		140			155		11.0		8.0	
Strontium	1000	1.4			980	98.0	1.3		982	98.2
Thallium	2000	-1.8			1910	95.5	-0.60		1900	95.0
Tin	1000	-0.60			980	98.0	0.20		973	97.3
Titanium	500	9.8			516	103.2	9.4		509	101.8
Tungsten	2000	-26			1900	95.0	-28		1880	94.0
Vanadium	500	-1.2			509	101.8	-0.20		497	99.4
Zinc	1000	-0.80			916	91.6	-0.80		903	90.3
Zirconium	500	1.1			466	93.2	1.0		345	69.0*

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M2.ICP

QC Limits: 80 to 120 % Recovery

Date Analyzed: 05/31/13

Run ID: MA15689

Methods: SW846 6010C

Units: ug/l

Time:

Sample ID:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB37699
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

05/31/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	20	1.2	3.6		
Antimony	1.0	.11	.15		
Arsenic	1.0	.17	.21		
Barium	5.0	.032	.073		
Beryllium	0.40	.01	.024		
Boron	10	.11	.11		
Cadmium	0.40	.025	.042		
Calcium	500	2.1	6.3		
Chromium	1.0	.048	.095		
Cobalt	5.0	.029	.047		
Copper	2.5	.093	.56		
Gold	5.0	.15	.43		
Iron	10	.35	.87		
Lead	1.0	.12	.17	0.020	<1.0
Magnesium	500	3	5.1		
Manganese	1.5	.016	.04		
Molybdenum	10	.031	.07		
Nickel	4.0	.045	.044		
Palladium	5.0	.22	.64		
Platinum	5.0	.64	1.5		
Potassium	500	5.4	8.6		
Selenium	1.0	.17	.35		
Silicon	10	.2	3.3		
Silver	0.50	.081	.13		
Sodium	500	1.6	3.3		
Strontium	1.0	.012	.03		
Thallium	1.0	.12	.13		
Tin	10	.087	.14		
Titanium	5.0	.066	.14		
Tungsten	10	.93	.94		
Vanadium	1.0	.082	.13		
Zinc	2.0	.045	.16		
Zirconium	5.0	.045	.088		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB37699
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21094: JB37699-1, JB37699-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

13.2.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB37699
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 05/31/13

Metal	MC21154-8 Original MS	Spikelot MPICP	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Gold				
Iron	anr			
Lead	9.1	82.4	85.7	85.6 75-125
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium	anr			
Tungsten				
Vanadium	anr			
Zinc	anr			
Zirconium				

13.2.2

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21094: JB37699-1, JB37699-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB37699
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 05/31/13

Metal	MC21154-8 Original MSD	Spikelot MPICP	MSD % Rec	MSD RPD	QC Limit
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron	anr				
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt	anr				
Copper	anr				
Gold					
Iron	anr				
Lead	9.1	76.6	85.7	78.8	7.3 20
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	anr				
Palladium					
Platinum					
Potassium	anr				
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Thallium	anr				
Tin					
Titanium	anr				
Tungsten					
Vanadium	anr				
Zinc	anr				
Zirconium					

13.2.2

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21094: JB37699-1, JB37699-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB37699
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date:

05/31/13

05/31/13

Metal	BSP Result	Spikelot MPICP	QC % Rec	BSD Limits	Spikelot Result	BSD MPICP	QC % Rec	BSD RPD	QC Limit
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	95.5	100	95.5	80-120	94.4	100	94.4	1.2	20
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium	anr								
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21094: JB37699-1, JB37699-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB37699
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 05/31/13

Metal	LCS Result	Spikelot MPLCS78	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Gold				
Iron	anr			
Lead	86.7	91.7	94.5	82-118
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium	anr			
Tungsten				
Vanadium	anr			
Zinc	anr			
Zirconium				

13.2.3

13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21094: JB37699-1, JB37699-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

13.2.3

13

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLIDMethods: SW846 6010C
Units: ug/l

Prep Date: 05/31/13

Metal	MC21154-8 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Gold				
Iron	anr			
Lead	107	113	5.3	0-10
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium	anr			
Tungsten				
Vanadium	anr			
Zinc	anr			
Zirconium				

13.2.4
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Associated samples MP21094: JB37699-1, JB37699-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

POST DIGESTATE SPIKE SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLIDMethods: SW846 6010C
Units: ug/l

Prep Date:

05/31/13

Metal	Sample ml	Final ml	MC21154-8 Raw	PS Corr.**	Spike ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
-------	--------------	-------------	------------------	---------------	---------------	-------------	----------------	---------------	-------	--------------

Aluminum

Antimony

Arsenic

Barium

Beryllium

Boron

Cadmium

Calcium

Chromium

Cobalt

Copper

Gold

Iron

Lead

Magnesium

Manganese

Molybdenum

Nickel

Palladium

Platinum

Potassium

Selenium

Silicon

Silver

Sodium

Strontium

Thallium

Tin

Titanium

Tungsten

Vanadium

Zinc

Zirconium

POST DIGESTATE SPIKE SUMMARY

Login Number: JB37699

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21094
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Associated samples MP21094: JB37699-1, JB37699-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(**) Corr. sample result = Raw * (sample volume / final volume)

(anr) Analyte not requested

13.2.5

13



General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Page 1 of 1

Job Number: JB37699

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: JB37699-1 Analyzed: 31-MAY-13 by HS
ClientID: AOI-5_MW-458_0-2'_52213

Method: SM21 2540 B MOD.

Wet Weight (Total)	33.744	g
Tare Weight	19.028	g
Dry Weight (Total)	32.156	g
Solids, Percent	89.2	%

Sample: JB37699-2 Analyzed: 31-MAY-13 by HS
ClientID: AOI-5_MW-456_5-6'_52213

Method: SM21 2540 B MOD.

Wet Weight (Total)	43.849	g
Tare Weight	25.739	g
Dry Weight (Total)	39.678	g
Solids, Percent	77	%



General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Page 1 of 1

Job Number: JB37699

Account: AQTAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: JB37699-1 Analyzed: 31-MAY-13 by AMA Method: SM21 2540 B MOD.
ClientID: AOI-5_MW-458_0-2'_52213

Wet Weight (Total)	33.744	g
Tare Weight	19.028	g
Dry Weight (Total)	32.156	g
Solids, Percent	89.2	%

Sample: JB37699-2 Analyzed: 31-MAY-13 by AMA Method: SM21 2540 B MOD.
ClientID: AOI-5_MW-456_5-6'_52213

Wet Weight (Total)	43.849	g
Tare Weight	25.739	g
Dry Weight (Total)	39.678	g
Solids, Percent	77	%
